The Builder.

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Architecture at Mycenæ.

IT will be a matter much to be regretted if the Collection of Antiquities from the Troad which Dr. Schliemann has arranged for exhibition in the cases at South Kensington, does not ultimately find a place at the British Museum. It comprises documents which must be regarded in all future speculations that have pretensions to thoroughness respecting the earliest connexions and developments of the Hellenic people and of Hellenic art. It were merely futile to reflect superciliously on the rudeness and ungainliness which characterise so many of them; no disrespect would be shown to an inscription of like date, could such be found, that gave us half the information, however uncouth the dialect,—however rare and incidental might be the phrases which betrayed that it must, indeed, represent the speech of a people not unrelated to either Greek or Trojan ancestry. The collections of the British Museum are gradually providing us with specimens of every stage of the plastic art, including ceramic, of the ancient world; and it were a pity that an opportunity should be lost of filling a gap. It is, too, probably hopeless that any specimens will be obtainable even by interchange, and purchase is out of the question, from the discoveries at Mycenæ and at Spata in Attica, on which the Greeks set justly a patriotic value; the more reason to secure what links can be secured of a chain that every student of art and history must be earnest to extend. Dr. Schliemann seems to have announced some time since that the collection was not for sale; but even from his own point of view it would surely be desirable that it should finally rest in safe and permanent and national keeping; while the realised value might strengthen his hands for the researches which he still looks forward to, and for the prosecution of which it is the hope of all that his health may be equal. Such a transfer would lessen in no way his great claims on the combined respect and gratitude of the civilised world; and the world at large would benefit more by these specimens finding a European rather than an American home.

The antiquities of Hissarlik,—of that site in the Troad which by the consent of antiquity was recognised as that of Troy,—have certain points of agreement as well as of significant contrast with those of Mycenæ which are engraved profusely in Dr. Schliemann's recent publication, and both stand in like relations to the antiquities of Cyprus. These latter are also brought prominently before us at this very time by the work of General Cesnola; the mass of his collection has indeed passed to America, but some articles are in our Museum, with a considerable number from other excavations at Cyprus, and only require juxtaposition with the Hissarlik collection to acquire an interest still more important. The three publications,—"Troy and its Remains," "Mycenæ and Tiryns," and "Cyprus: its Cities, Tombs, and Temples," must range on library-shelves, and be studied most effectually in conjunction with whatever help is available from actual inspection of the remains, which it would be excellent to have in as close association, or almost as easily to be referred to.

It is at Mycenæ that we are attracted to take our stand, when we would "let observation, with extensive view," survey the world of which we obtain the glimpses through the night of ages. It was from Mycenæ, so the poet sang, that Agamemnon started, equipped with armour presented to him by a Cyprian king, for the siege of Troy, and the antiquities from this site while, for the most part, intermediate in age between the others, are in every respect more important. The students of architecture have long been familiar with many details of the primæval constructions of Argos, Mycenæ, and Tiryns, and the objects which excavation has now brought to light can be identified as pertaining to the same general period,—a period of uncertain but probably vast duration,—to which some of the most interesting of those structures owed their origin.

It is as long ago as 1830 that Professor Donaldson published, in the supplementary volume to Stuart's "Antiquities of Athens," a series of illustrations of the subterraneous structure known as the Treasury of Atreus. Details were partly furnished by Mr. Cockerell, who had made some excavations on the spot, and partly by drawings executed by Lusieri for Lord Elgin, and now preserved in the British Museum. Of the authenticity of these records there could be no question. Some of the ornamental fragments came into the British Museum as part of the Elgin collection, and there it has been our fate to hear an archæologist put aside a remark as to their importance, by the disparaging word, "Byzantine!" After Dr. Schliemann's discoveries, this at least will not have to be endured again. We have another example here how discoveries larger and under more striking circumstances are constantly required to notify to students that they had long possessed and neglected evidence which, however moderate in extent, was quite conclusive by itself on points of the highest interest.

The sites of at least five more such structures, as the better-preserved treasury of Athens so called, are shown on Dr. Schliemann's map, and he also furnishes some important details of one near the Lions' Gate, which was excavated by Mrs. Schliemann, smaller than that assigned to Atreus, and of ruder construction, but of the same general plan. A broad avenue, or *dromos*, between walls of squared stones, conducts in this case also to the portal, which admits by a narrower inner passage to the circular area of the chamber. The interior, as in other cases, was domed by a peculiar system of construction; and the exterior was entirely covered with earth. The portal itself is of noble dimensions, and treated with much dignity; the lintel is an enormous stone, in front of another much larger, which roofs the passage that is first entered. The lintel was relieved, as much from tradition of the construction, it is probable, as,—its strength considered,—of necessity, by a void triangular space, towards which the masonry approached on either side by projecting stones of regular courses, and which no doubt was originally closed by a single slab, as at the Lions' Gate of the citadel.

The circular chambers were contracted upwards by courses of stones gradually reduced in diameter, until a small aperture at the top could be covered by a single stone. The blocks of the lower courses of the largest example are 1 ft. 10 in. high and from 4 ft. to 7 ft. long, but they become gradually narrower towards the top.

It is much to be desired that the smaller treasury should be surveyed, measured, and excavated more completely than it was possible could be done under the circumstances of this first examination. It is of prime historical and architectural interest to discover what indications may present themselves of differences technical and artistic that represent progress and considerable lapse of time. Thus the section of the treasury of Atreus shows a quasi-parabolic curve which rises steeply from the ground line, and gives free headway quite close to the circumference; but Dr. Schliemann's section of the other example represents a tall right-lined triangle; and the sloping walls here meet the floor at an angle so acute as to seriously reduce the available standing area.

The larger chamber has a height of 45 ft., or nearly equal to the diameter at the floor line, 48 ft. The smaller, if it was really completed as the section of what remains would indicate, must have had the greater height of over 60 ft. to compare with base of about 42 ft.

In the Atreus treasury all the stones of the horizontal rings are of hard breccia, and were found worked fair and concentric to the depth of 3 in. from the inner face of the chamber, so as to meet with the greatest precision, and without any binding material. The remaining portion of the joint was less accurate, and even rough, but into these small stones were driven in very tight, like wedges, no doubt after the completion of an entire ring; solidity being thus ensured without risk of opening the internal joint. We then read (p. 43) that the irregular outside ends of the stones were not immediately covered with earth, but with enormous masses of stone. We should be glad of precise par-

ticulars how these were disposed; unless their vertical pressure fell well outside the base line they would certainly not tend, "by their ponderous weight to keep all the stones of the circular layers in position." These are among the many points of detail which must remain doubtful, awaiting the definite observations of an architect.

In both structures the stones were dressed off to a smooth slope in the interior; those of the larger, which we will call A, from the fourth course upward, show each two bored holes for the insertion of nails with broad, flat, unornamented heads. Gell, in his "Argolis," engraves one of these, which he had succeeded in detaching by use of a long pole from near the top; and the drawings of Lusieri show how they projected obliquely, and thus most suitably for their assumed purpose of suspending the metal plates which Homer's descriptions authorise us to infer originally clothed the walls. Some outline patterns on the local terra-cotta have much appearance of having been suggested by overlapping plates or scales so attached. The lower portion of the wall to the height of some 8 ft. was probably cased with wood. No such holes or nails were found in B, but a circumstance which Dr. Schliemaan quaintly says, "I cannot avoid mentioning," seems to indicate a partial application of some other contrivance. "On the inner east side of the Treasury there protrudes from between the stones the fragment of a bronze plate which sticks so fast that it cannot be drawn out; I therefore suppose that it was fastened there when the Treasury was built." He adds, it is true,—"It appears hardly possible that this could have happened merely by accident, but, on the other hand, I find it difficult to believe that this bronze plate could be the remnant of an ancient wall-coating of bronze plates, which were fastened not to the stones with nails, but were attached in the joints between them; because in this case, I presume, we ought to find remnants of those plates in many cases." Besides the nail Gell knocked out a bronze wedge, but in the darkness could not see how it had been employed. The composition of the metal was eighty-eight parts copper to twelve of tin.

The floor of A is the natural rock (p. 44). The floor of B was also found to be the levelled rock covered with a coating of sand and chalk, traces of which were found in many places, the remains it may be of a made surface as that of the rock slopes towards the centre which is 1 ft. lower than the threshold. The great chamber of A has a second doorway, at the right hand side within, which admits to a second chamber, nearly square on plan, 27 ft. either way, and 19 ft. high, entirely cut out of the rock. The doorway has the usual massive lintel and triangular relieving space, now void, which show conclusively that it was part of the original plan. In the centre of the floor Dr. Schliemann found a circular depression, in form of a large washbowl, 1 ft. 9 in. deep and 3 ft. 4 in. in diameter, and near it some large calcareous stones, apparently remains of some construction. Here, again, we feel defrauded at not being supplied with dimensions and sections,—hard as it may seem to complain of one who gives so much that he has not given more.

From silence, it is to be inferred that no trace of such a secondary chamber was to be found in B; but a distinct assurance would have been more satisfactory that it had been looked for and could not have existed. In such case it may be regarded as one of the additions that are to be expected in later developments of a traditional type. This difference may bear very importantly upon the question in what sense these so-called treasuries can ever have been tombs. The question of their purpose seems to lie between temple, tomb, and treasury; if ever employed as prisons, it must have been only secondarily. The mere traditional name of treasury need imply no more than an inference from a natural application for a dark underground chamber, or from occasional discoveries within them of valuable funereal deposits. It is inconsistent to suppose that depositories of royal wealth, the military chests of warlike chiefs, were outside the citadel, and scattered at all points about the city. Chambers for the dead, only rectangular on plan, are found constructed on this principle of overhanging courses of slabs and covered with mounds in the Greek cemeteries of Panticapæum and its conterminal districts, and also in Asia Minor. And, manifestly, it is not because we do not find graves sunk within these chambers at Mycenæ that we are not still at full liberty to regard them as tombs. In the parallel cases the dead were consigned to their solitude extended on open biers, enclosed in stone or other coffins; or sometimes urns are found which contain relics and ashes collected after process of cremation.

The doorway of the interior chamber of A exhibited plain proofs that it had been secured by strong bars or bolts, and Dr. Schliemann found like ample provision for bolts in the jambs and cill of the Lion Gate, and in the jambs of the postern gate of the Acropolis; but Gell reports, and Hughes, who travelled in 1813, makes the same observation, that no traces of holes for bolts, or sockets for hinges, were to be found at the great entrance of the Atreus treasury; if this were indeed the case, the sepulchral character of the building must be surrendered at once, and we should have a difficult task left on our hands to reconcile the anomaly with any other theory. But the recent excavations, which have cleared the entrance more thoroughly, seem to relieve us of the difficulty. It is only a pity that the statement is not given in terms more definite than these,—"In the middle of the doorway can be seen the holes for the bolts and hinges of the doors, and in the same line are a number of round holes, 2 in. in diameter and ½ in. deep; in these are two small holes for bronze nails, of which fragments still exist, to fasten on ornaments of a circular form." Hinges in the middle of a doorway, and ornaments in the same line as the bolts, are not, at first, expressions easy to understand; but of the main fact we need not doubt that the entrance had a secured door; however, the false impression of Gell, whose observation is not usually at fault, is to be accounted for. Indeed, half-way between entrance and chamber, Lusieri's plan has an indication of sockets for pivots, and though his section does not confirm the indication, that of Donaldson and Cockerell happily does so by showing pivot-holes in the roofing slab; half the entrance-passage, therefore, was open, and half closed off. The doorway of A is 18 ft. high and 9 ft. 2 in. broad at the cill, diminishing to 8 ft. 6 in. at the top. That of B is even 18 ft. 5 in. high, and 8 ft. 4 in. broad, but we miss any notice of sockets for bolts or hinges as either present or absent,—another matter for future visitors to look into. The entrance-passage of B is 13 ft. long, that of A is 18 ft. This passage in A, intermediate between the portal and the circular chamber, is roofed beyond the lintel, by a stone somewhat vast to be called a slab, and, like the lintel, "beautifully cut and polished." Its thickness is 3 ft. 9 in.; breadth, 17 ft.; and its length, 29 ft., on the upper surface, a dimension which is reduced to 27 ft. 6 in. on the lower, where it is cut off to agree with the sloping side of the chamber, while its upper and lower edges curve, to follow the circumferential line.

As the wall is continued vertically over the cill, a space was enclosed between it and the exterior of the chamber above the entrance-passage. The section in the supplementary volume, and the view of the interior given by Gell, show another relieving triangular opening in the side of the vault itself, over the entrance to the chamber below; but how the intermediate space above the great slab was treated or roofed there is no evidence at hand to show. As Dr. Schliemann would say, "we draw particular attention" to the bevel of the stone in the section of the interior opening.

Some important decorative details of these entrances are still to be described and their significance considered; but we may at once gather up what scattered notices give any help as to the original purpose of the vaults so elaborately constructed. A passage of Pausanias (2, 23, 7), which is quoted in Dr. Schliemann's note (p. 44) is important, but not quite so much so as it promises at a hasty reading of the text, to say nothing of the misleading Latin versions of the German editors. "The Argives have other things worth seeing; a subterranean structure over which was a bronze chamber which Acrisius made on a time for the safe-keeping of his daughter Danae; but which Perilaus when tyrant destroyed. There is this structure, then, and a monument of Crotopus and a naos of Dionysus Cresius." The editors, Siebelis as well as Schubart and Walz, connect these sentences most tantalisingly, as if the structure of the first could be identified with the burial referred to in the second. The commentators also are ready to authorise the translation "in which" instead of "over which"; but in truth neither can be allowed. A close and candid reading of the entire paragraph makes the interpretation as given above inevitable.

It seems, however, very clear that Sophocles considered that the prison of Danae was a subterranean metal-lined chamber; and it is then tempting to conjecture that the ruin charged upon Perilaus, whose date is quite uncertain, was in fact stripping off the metal from the underground structure which Pausanias found still existing, and described by the phrase which he applies to the treasuries of Mycenæ. The tragedian's words are, that "Danae endured to interchange the light of heaven for the brass-plated halls, and was kept imprisoned, hidden in a sepulchral thalamus." On the other hand, when we recall the legend that Jupiter, as a lover, visited Danae in the form of a shower of gold, and when Pausanias, after describing the treasury of Minyas at Orchomenus, distinguishes it from the tomb of Minyas, we seem thrown upon the associations of a treasury. The question as to the sepulchral character of these buildings has acquired fresh importance by the problem of their relation to the interments in contrasted fashion discovered by Dr. Schliemann on the acropolis. Further excavating alone can be looked to, to settle the question positively. On the whole, perhaps, what is most noteworthy in the literary allusions is that they agree in carrying back the origin of such structures to an age long anterior to that of the Pelopid dynasty, which is associated with the legends of the expedition to the Troad. The subversion of this dynasty is dated, with great probability, full one thousand years B.C. How much earlier may have been its establishment, and that of dynasties preceding it, are questions truly in the air. Such questions are as interesting, and perhaps as desperate withal, as a chronology of the geological formations that lie below London. We may think much of being able by study of fragments of ornamentation which are our indicating fossils, to make some approach to fixing at least an order of succession of monuments and hints of epochs of transition.

This subject demands treatment apart. With respect to construction and plan, the Treasuries,—that of Atreus particularly,—exhibit the culmination, and that at a very advanced point indeed, of what we find in most rudimentary form at Tiryns, and developed some further stages at Mycenæ. The walls of Tiryns are piles of huge rough masses of rock, with no approach to observance of horizontal beds, and only occasional and apparently later marks of the tool; at Mycenæ, the blocks, still large, are more moderate, in many portions are for the most part wrought to quadrangular form, and laid in courses, while still no attention at all, or only the most exceptional, and perhaps accidental, is given to covering alternate joints. Galleries in the walls of Tiryns are formed by approximation of opposite stones, and Gell found remains of several bridges in the adjacent valleys, which had been formed in the same way by horizontally projecting stones. The horizontal lintel, with relieving void above, first appears at Mycenæ. Every stage of transition can be identified until we arrive at the Treasuries, which exhibit one great originality in, as it were, returning the gallery wall round upon itself, and so adjusting this principle of covering intervals to a circular plan; but still this improvement and very excellent workmanship are combined with no further constructive innovation,—least of all with any tendency to the rule of true arcuation.

Contrasted, therefore, as these structures are with what we know as the most characteristic architecture of Hellenism, they have so far an organic principle in common, exclusive dependence on trabeation,—the most loyal allegiance to the solidity of simple downpress. Whether an analogy of equal value can be made out between the ornamentation of two epochs is still to be considered, and fortunately we are not without valuable material for comparison.

Waste Land. — Sir Horace St. Paul, of Ellowes-hall, Dudley, has consented to have about thirty acres of his waste colliery lands at Coseley levelled and cultivated, with the view of finding employment for a large number of men who are suffering great privations owing to the depression of trade. As there are thousands of acres in a similar useless condition in the Black Country, it is hoped the example will be followed by other land-owners.

THE SO-CALLED LAW OF "ANCIENT" WINDOW-LIGHTS.

IN the largest and most important commercial centre, perhaps, in the world,—in a Capital whose sunlight has been not inaptly compared by a foreign cynic to the moonbeams of Venice, it is inevitable that the right to enjoy the sun should be eagerly acquired and jealously guarded; it is equally inevitable that London daylight, esteemed a piece of property, should be marketable. Nor can it surprise any one who knows how many obstructions,—with which other less fortunate nations are unfamiliar,—exist in this country to spoil good architecture and perplex an honest architect, that the law of window-lights or "ancient" lights is a matter rather of accident than of principle; a law or custom framed upon the most ancient maxim of all creation, that He shall take who has the power, And he shall keep who can.

Without the smallest intention or desire to increase the mental confusion of those who, not being technically learned in the Law of Easements, would like to hear something intelligible about the subject, we propose to make a few remarks upon the common-sense aspect of the actual difficulty,—to examine it from the point of view of justice, and not from one of Law or Equity, or any other focus of dilemma. Those who aspire to collect the details of the case of poor architecture in crowded cities, will find all the cases that lead up to it, and upon which its present uncertain position is founded, in books; from Gale on "Easements" to Elmes on "Architectural Jurisprudence," from Latham on "Window-lights" to Cox on "Ancient Lights." There are also valuable papers, printed in the Transactions of scientific societies, which treat practically of the Law as it is; one was read by Professor Kerr, another by Professor Donaldson, in the year 1866, before the Institute of Architects. A paper on the same subject was read before the Institution of Surveyors in 1875 by Mr. W. Dundas Gardiner; and only the other day one of her Majesty's Counsel continued the subject in a paper, part of which we printed, read before the Institute of Architects. It will probably astonish no man of business, certainly no lawyer, to learn that only since the publication of the earlier papers has litigation, connected with the right of light, assumed a form which bids fair to become a greater nuisance than the nuisance it pretends to remove.

Theoretically, the owner of a plot of land in London may build whatever he likes upon it, over all or any part of it, and to whatever height he pleases, provided only that his building does not injure the property or affect the rights of his neighbours. For instance, he is not at liberty to darken his neighbours' windows, though the nature of such darkening, or what darkens a window, is not defined. Suffice it that he is not legally allowed to build anything on his own land which interferes with the right to light that his neighbour or his neighbour's predecessor has enjoyed for a certain period of time. That period is regulated by an Act of Parliament passed in the second and third year of William IV. (1st of August, 1832), and called the Prescription Act. It is the only measure in which St. Stephen's has essayed to remove difficulties attending what are now known as "ancient" lights, that is to say, windows which have been permitted to exist for at least twenty years. Before the passing of the Prescription Act, the right pertaining to an ancient light could only be enforced by proving that the window existed from time immemorial,—or time whereof the memory of man runneth not to the contrary,—that is to say, from the reign of King Richard I. In 1832 it was enacted, "That when the Access and Use of Light to and for any Dwelling-house, Workshop, or other Building shall have been actually enjoyed therewith for the full Period of Twenty Years without Interruption, the Right thereto shall be deemed absolute and indefeasible . . . . unless . . . . enjoyed by some Consent or Agreement, &c." The practice, however, of granting injunctions to prevent the erection of buildings which may affect an "ancient" light has only become comparatively common during the last ten or twelve years. Before 1866, the best of the Lord Chancellors took a broad view of the exigencies of commerce and the progress of improvement in towns. For more than thirty years after the passing of the Prescription Act, an "ancient" light was regarded as too often an obstruction to improvement rather than as a fit object to obstruct improvement. The opinion expressed, much more than a hundred years before, by Lord Chancellor Hardwicke, was tacitly endorsed: an opinion that though "it is true the value of the plaintiff's house may be reduced by rendering the prospect less pleasant, but that is no reason to hinder a man from building on his own ground." Indeed, not long ago Lord Cranworth suggested in one case what a barrister, technically interested in the confused practice of "light and air," has called a very alarming doctrine, that dwellers in cities must submit to encroachments upon their "rights" as to windows which dwellers in the country might feasibly claim. But by the zeal of two Vice-Chancellors in 1865-6 effect was successfully given to the statute which defined and established the prescriptive right to light. They granted injunctions which caused one Lord Justice to say that the Vice-Chancellors had gone too far. Through the efforts of the latter, however, the Court of Appeal was squeezed into seeing that such injunctions were necessary. Even Lord Cranworth consented to undo the effect of what he had previously said; but his adherence was given with a protest. By the Prescription Act of 1832 the reputed custom of the City of London was abrogated. Of that custom, which permitted the erection of buildings to any height upon old foundations, Lord Cranworth said:—"The growing necessity for lofty buildings is shown by the great multiplication of them in all parts of the metropolis, and I cannot but fear that serious inconvenience may be felt by the abolition of the alleged custom." Many surveyors and architects, liberal and enlightened members of their now divided profession, concur in the opinions of Lord Hardwicke, Lord Justice Turner, and Lord Cranworth. They conscientiously believe that a great misfortune happened when the Court of Appeal ceased, in this instance, its constitutional opposition to the Court of Chancery.

Before proceeding further, let us attempt to define an easement, or at least to understand an accepted definition. According to the great authority, Gale, "It is a privilege without profit which the owner of one neighbouring tenement hath of another"; and "by which the servient owner is obliged to suffer or not to do something on his own land for the advantage of the dominant owner." The "dominant" is that one to which the alleged right belongs; the "servient" that upon which the obligation is imposed. The "right" imposing the obligation is called an "easement,"—a term which comes to us through the French from the Latin. The privileges it includes were called in the Roman civil law "*servitutes*": thus, the right of the dominant owner over the servient owner is called in English law a "servitude." This limitation on the power of a servient owner over his own land is tersely, and somewhat contradictorily, expressed in the ancient maxim of "So to use your land as not to injure another" (*sic utere tuo ut alienum non lædas*).

Now lawyers, surveyors, architects, and others who periodically report upon the state of the Law of Easements, tell us, in becoming terms, that it is based upon the Roman practice. What is not told by them, and what we consider highly essential to know, is not the practice alone, but the real state of the law of servitudes in ancient times. It is necessary to understand how feasibly to apply to London the maxim of the Digest,—"Let him who would injure the lights of his neighbours, or do any other thing to them, know that he ought to maintain the form and condition of the ancient structures" (*Qui luminibus vicinorum officere, aliudve quid facere contra commodum eorum vellet, sciet se formam ac statum antiquorum ædificiorum custodire debere*). It is necessary to be minutely informed of the circumstances connected with that law, recorded in the Institutes of Justinian, by which the owner is restrained from increasing the height of a house, lest he should darken his neighbours' windows (*ne altius quis tollat ædes suas ne luminibus vicini officiat*). It is necessary to have a better explanation than has yet been accorded to victims of "light" legislation how certain maxims which were current in Rome 1,400 and 2,000 years ago are applicable to London in the nineteenth century,—how the natural right of the owner to the use of his land, even up to the highest heaven (*cujus es solum ejus est ab imo usque ad cœlum*), provided he so use it as not to affect his neighbour (*sic utere tuo ut alienum non lædas*) either by force, stealth, or favour (NEC *vi*, NEC *clam*, NEC *precario*) can be made to apply to a province of houses rising every score of years, nearer to the sky. The very words "dominant" and "servient" betray their origin. Among the Romans the mutual relation of master and slave was expressed by the terms of "*Dominus*" and "*Servus*" or "*Servitus*." The power of the master over his slave extended to the right of putting him to death; he could sell or punish his slave at pleasure. A Roman citizen could seize his creditors, or hold them in slavery; and he used his slaves as Englishmen and Americans once used theirs in Jamaica and Virginia. The Roman often gave his slave a piece of land, contiguous to or part of his own estate, and this piece was to be cultivated or built upon for the benefit of the slave's master who was thus the dominant owner. Under such conditions of existence the *servitutes* were clear and comprehensible. There were two classes of servitudes. Either they had for their subject a definite person who could exercise the right, and they ceased with the death of the person; or they had for their subject another piece of property, as land or a house, and the person who exercised the service (*servitus*) exercised it in respect of his right to the house or land which was its subject. Servitudes of the latter kind were called Prædial Servitudes. These implied the existence of two contiguous pieces of land, one of which owed a service to the other; and the service was due from the one to the other. The name of dominant tenement (*Prædium Dominans*), which is now used to designate the tenement to which the service or easement is due, is a modern invention. A service, now degenerated into an easement, was an advantage to the land to which it belonged; it must have been something that in some way increased the value of that land. It was also a thing that was permanently to the advantage of the dominant tenement or estate. The service was considered as belonging to the dominant estate in such a sense that it could not be alienated without the estate, nor pledged, nor let.*

The condition of the City of Rome 1,400 or 2,000 years ago is also worthy the attention of those who may yet frame a just and explicable law of light and air. Two laws of the eighth table, confirmed about B.C. 450 are as follow:—"Let the space of 2½ ft. of ground be always left between one house and another"; and "roads shall be 8 ft. wide when they run straight and when they turn, 16 ft." Five hundred years after those laws were promulgated some of the streets were still barely three yards wide, if we may judge from recent excavations in Rome. The articles upon the Era of the Cæsars lately published by ourselves (vol. xxxv., p. 417), go to show what the condition of the world's Capital, during the first century, resembled. The houses lofty and of many stories, principally of wood, projected over the streets and internal courtyards; and they were propped up in places. The colonnade and the portico, often of wood, formed parts of every house above those of the lowest kind. Neighbours could do more than shake hands from one house to another; they could look into and command one another's rooms. The shops were most frequently one apartment; some had a room at the back, lighted and entered from the shop. In the third century, if we may depend upon the fragments of the Marble Plan, wider streets and improved habitations existed in different quarters of the City. The "magnificence" of Rome from that time till at least the reign of Justinian (A.D. 528—545) is beyond possibility of doubt. But nothing extant, nothing that has been discovered by modern enterprise, suffices to show that the private comfort or ease, which is the distinguishing mark of recent times, was then understood, or that the "public magnificence," of which so many moderns have written, was anything else than the outcome of State aggrandisement. The conditions of life and habitation in Rome during the sixth or the third century, and of London in the nineteenth, are indubitably not analogous. The spirit of Law in the one ought not to be arbitrarily imposed as the letter of Law in the other. To descend to details, it is almost ridiculous to compare a diminutive ancient light, filled with talc or tiny bits of Roman glass, to the big sashes and bigger casements filled with the plate-glass of to-day; and soon to be catalogued as "ancient" windows.

Moreover, it would be well if those who have interests nobler than the so-called "expert," ready

* See the excellent articles:—"Servitutes," "Servitus," "Superficies," and "Accessio," in Dr. Smith's "Dictionary of Antiquities."

to be hired for either plaintiff or defendant, would consider how an owner, who presumedly owns his land *ab imo usque ad cælum*, is to be limited in enjoyment of his own by the owner of a dominant tenement who either by force, stealth, or favour (AUT *vi*, AUT *clam*, AUT *precario*), or in some other manner, without the consent and concurrence of any "servient" owner,—has acquired such a right as to entirely control servient, that is to say, neighbouring, tenements. It would be well, we repeat, for all men of influence to consider how the owner of a dominant tenement can legally increase the value of his own property by, so far as access of light is concerned, practically embodying all servient tenements within his own estate. Let us imagine a case: that of the owners of a field just outside London, or any other increasing city in England. Say that it is situated at a spot now covered with grass and bushes, but a spot which, in twenty years' time, perhaps, will be absorbed in the suburbs already and gradually creeping up to it. The field, say, is divided longitudinally in two unequal parts. The larger part belongs to one owner; the smaller part, a mere slice, belongs to another. The former erects *on the very edge of his own ground*, and throughout the whole length of the field, an enormous mill, a hospital, or even a gun manufactory. He makes it, say, seven stories high, and he opens a hundred windows, some fourteen in each story, directly looking into his neighbour's little bit of the field. The building thus raised is the dominant tenement which, in twenty years (that is to say, in nineteen years and a day),* will have acquired by prescription an absolute and indefeasible right to prevent the owner of the adjoining little slice from erecting anything upon it except a one-story building; and even that would have to be placed at least 10 ft., throughout the whole length of the dominant tenement, from the edge of the servient owner's own property. If the owner of the dominant tenement carried on a special trade, such, for instance, as gun-making,—where light is required at so low an angle as to enable the workman to look down a gun-barrel,—the servient owner would be altogether prevented from using his own land for building purposes. He has, however, a remedy at law open to him, and the option of applying it within the statutory lapse of years. He may erect on his own land a screen-wall in brick or stone or wood, and entirely block up the hundred windows of the dominant tenement. But to erect such a screen might be attended with a cost double or treble the value of the slice of land he owns,—land, by the bye, which might only acquire value after twenty years or more. Yet that is the custom of this country introduced and supported by the Act of Prescription; and it is confirmed by a succession of Judges' judgments, imperfect, contradictory, and unjust.

Again, we know of a case which actually occurred. The owner of houses, built on the very verge of the land he owned, was on the eve of acquiring, by prescription,—that is to say, the lapse of less than twenty years,—an absolute dominant right over his neighbour's land. He was on the eve of acquiring the right to prevent his neighbour from making the same use of property that he himself, nearly twenty years before, had made; he was about to be possessed of the right to drive off his neighbour's buildings at an angle of 45 degrees, drawn from the centre of his basement windows, or, as we said before, if he could show necessity, at a much lower angle. The servient tenement changed owners just in time to "save its bacon," if we may use a phrase not recognised in equity; and the owner of the dominant tenement formally complained that the trade carried on within the servient tenement was offensive. The owner of the latter called in a well-known surveyor, who, finding that just a few months were still wanting to complete the required lapse of years, built up a lofty brick wall on his client's land, and so prevented the owner of the dominant tenement from seeing, or hearing, or smelling the offensive trade of the servient owner. This, which was done only at a vast expense, would have been impossible after the statutory years had elapsed.

It is, therefore, quite natural that most of the speakers on this subject at the Institution of Surveyors and the Institute of Architects should urge the revision of the law, or so-called law, of "ancient" lights. Mr. I'Anson, in discussing Mr. Dundas Gardiner's paper, said, very wisely, that it was not altogether a satisfactory solution of the difficulty of right acquired by undisturbed possession, for the Legislature to fix upon twenty years as the period in which a right to light might be lost or acquired. The rule, he continued, worked very oppressively in some instances. Twenty years in the life of a man was a comparatively long period, representing, as it did, two-thirds of a generation; but in the life of buildings it was a very little space of time, for an edifice might last 200 years, and the owner of a building, when he erected it, built it for a century or more. Mr. Chatfeild Clarke, both at the Institution of Surveyors and the Institute of Architects, expressed himself very clearly on this matter. Before the former he urged that where a building was raised opposite to another, each retaining rights of light, the party first raising ought absolutely to contract with the other to give a right to raise to a similar height at any time hereafter, each party having a power to attach this right to the property. In the recent discussion on Mr. Webb's paper, the same gentleman said that the practical question for the Institute to consider was, what could be done to alleviate the cruel hardship, the great annoyance, and the exceeding loss which fell upon owners of property through the constant ligitation arising out of the present state of the Law concerning "ancient" lights. He spoke of certain building speculators who, having within the last few years built large premises which had injured the light on the opposite side of the street, were now able, and legally encouraged, to defy the parties whom they had injured to carry the premises of the latter any higher than they formerly were. Nor was Professor Kerr less categorical in his denunciation of the present chaos of custom and opinion. He said that no practical man was able to tell beforehand what would be the issue of any controversy or litigation upon the subject; and that no man could determine, with precision enough to guide an architect in the preparation of a design, what would be the opinion which the Court, or a jury, would form as to materiality of damage in cases of light and air. England, he added, was the very Paradise of vested interests; and as damages, in such cases, could only be determined by architects and surveyors, he urged the profession to be more chary of coming forward to support claims of light and air, and more disposed to take up the victims', or, more properly, the defendants', cases.

There cannot be a doubt that the Law, such as it is, is of a character likely to place a weapon in the hands of evil-doers, and that the owner of the dominant tenement too often acts as a spoliator: that he is aggressive as well as dominant. The law in his case is that of "first come first served"; and it confesses itself, by the mouths of great judges, unable to protect the owners of property from being injured or despoiled. As to the protection of the servient owner from the aggression of the dominant, it is all very well to say, as lawyers do with cool complacency, that it is competent for the servient owner to obstruct aggressive lights, to protect himself by screens or walls, and thus prevent the accretion or growing up of the right, but in the case just instanced by Mr. Jennings, before the Institute of Architects, the cost of such protection alone, quite independent of all legal expenses, becomes intolerable and an impossibility. The Roman Institutes are indubitably most excellent in conception; but somehow in this age of competition and struggle, the maxim, "so to use your own as not to injure your neighbour," has got to be applied, in cases of "ancient" light, almost solely for the aggressor's advantage. Whereas it ought to be applied, *in the first instance*, to the aggressor himself,—the owner of a dominant tenement,—in order that the thing which he is permitted and encouraged to do may not be done. As it is, the owner of a bit of land, in the midst of a solitude which after an interval may become a populous district, often creates the *wrong* that gives him the *right* to apply an equally old maxim of misrule:—"I have hurt you, but you shall not hurt me"; a wrong, moreover, that he is taught to call his right by what we have heard described, in cold blood, as the iniquity of Equity.

Nor can it be denied that, in several instances, the state of the Law has encouraged extortionate claims, and that fear of such extortions or rather dread of litigation, is a powerful bar to the improvement of house property and the consequent progress of towns. Indeed, architects, not all without professional reputation, have lent themselves, under the name of "experts," to aid rapacity on the part of aggressive or dominant owners. The keen solicitor often influences, for his own as well as his client's purposes, inferior and ignorant members of a profession, the membership of which is open to all men qualified or unqualified. It has even been asserted that no sooner is an old building pulled down, and about to be reconstructed, than the smooth expert,—so called,—explains to the neighbours how, if they will but entrust themselves to him, he can obtain for them a liberal compensation from the unhappy servient over whom chance, or a lapse of twenty years, has given them a dominant right. The equitable law of light and air thus becomes in the hands of the unscrupulous an engine of oppression; yet, in a multitude of cases, the oppression, however virulent or even extortionate, results in little or no pecuniary profit to those engaged in it, other than the legal profession and the "scientific" assistants they employ. With a phalanx of expert witnesses duly prepared for attack and defence, and always ambitious to be sworn, counsel learned in the law dilate upon the prior decisions of courts. A select audience of the British public enjoy, without understanding, the technical wit of Bar and the facile stolidity of Science. The crash of intellect within the courts is only a little less conflicting than the conflicts between the courts themselves. The results would amuse all men, were they not disastrous to many. In most countries, even in those which preach equality before the Law, litigation is a luxury; and after the piling up of costs by the solicitors, after the venting of righteous indignation by the judge upon the presumed evil-doer—generally the defendant,—the successful party is often astounded at a victory which gives him power to curtail or destroy a new building, and to accept a paltry sum for allowing it to remain, or be completed.

If in this inquiry we have abstained from broaching the question of any other easement than that of window-lights, it is simply because we can only devote a certain amount of space to the matter. The right to air is inseparable from the right to light, and we would tolerate any anomaly of law or custom which prevented the gradual filling up of breathing-space within the *insulæ* of London and the great towns. But, if people will only reflect, it is since advantage was taken of the Prescription Act, since the Vice-Chancellors in 1865-6 granted injunctions under that Act, that many of the internal breathing-spaces in the heart of London have been built upon. There is no law to prevent the owner of an entire *insula* in any part of London from filling up the open yards between its four surrounding sides; there is no rule, municipal enactment, or local bye-law, to prevent half a dozen owners from paralysing one lung of their tenements to the detriment of those they employ, or of those to whom they let the upper portions of their houses.

The subject must not drop; the absolute necessity for a revision of the present laws or precedents regarding window-lights must be brought home to the Legislature. Some definite and defined principles ought to be laid down for the consideration of real experts, both legal and scientific. We are not quite satisfied with any of the papers that have been written during the last twelve years upon this subject. That of Mr. Dundas Gardiner, prepared nearly ten years after that of Professor Donaldson, is perhaps the best and most usefully argumentative. The paper just read before the Institute of Architects breaks no new ground. Mr. Locock Webb mainly repeats what has already been printed by many others, and appends an additional catalogue of cases. We would like a paper on the Law of Easements to treat that part of the subject relating to architecture and building under three general heads. One, the Law of Support to land and buildings, including the extraordinary laws which relate to persons who own a single story of a house,—a not uncommon tenure of chambers in the Inns of Court. Second, a consideration of the history, as well as the practice, of the Law of ancient Window-lights. This should show how it came to be included in the Prescription Act of 1832, and how that Act remained for nearly thirty-four years in abeyance as regards obstructions to light and air. Third, an inquiry into cases of negligence and Miscellaneous Easements. The whole subject requires intelligent ventilation; it will be a great thing to give not only the general public, but also many architects and surveyors, the chance of

* See Mr. Dundas Gardiner's paper in the Transactions of the Institution of Surveyors.

understanding the character of that action which the Legislature now sanctions and even promotes. It is perhaps not known to all professional men that some of the greatest landowners in the metropolis insert in their leases provisos expressly negativing the existence or acquisition by their lessees of any right of light and air, or other easement, over the adjoining property of the lessor. Such a clause, which of course is an advantage to the landowner, is equally advantageous to the well-disposed lessee and the good builder. But the introduction of such a clause into leases is only possible on great estates, or in parts of the metropolis where, according to the old proposition, easements have been extinguished by unity. Owners of slices of land, lessors of divided property, lessees of a house, or two or three houses, have no other protection than that code or system or custom which can enable so eminent a judge as the present Master of the Rolls to deliver, in the maturity of his wisdom, a judgment like that in the recent case of Aynsley *v.* Glover:—"*As I understand*," said Sir G. Jessell, "*the rule now is, and I shall so decide in future,—unless in the meantime the Appeal Court shall decide differently*—that whenever an action can be maintained at law . . . . then the injunction ought to follow in equity." It was the same judge who, in the year 1875, enjoined upon litigants the moral necessity of being neighbourly. In the case of Paulig *v.* Waterlow,—referring to a large new building erected upon the site of the old Finsbury Market,—the Master of the Rolls said that he remembered the place very well, because his father lived in Finsbury-square for ten years. It was a wretched market, and he was very unwilling that the improvements being effected by Mr. Waterlow should be stopped. He did not like injunctions being made use of to get an excessive sum. He concluded a generous exhortation, in which attempts to stop improvements were stigmatised in language worthy of a Master of the Rolls, by ordering the agent of improvement—defendant in the case—to pay the plaintiff—obstructor of such improvement—the sum of 500*l.* and his costs.

YRIARTE'S "VENICE."

THE earlier portion of M. Yriarte's splendid work on Venice we noticed in the *Builder* for March 10th of last year. The further and concluding portion of the work which is now before us,* continues in the first instance the subject of "art" (which had been treated in the former portion, so far as architecture and sculpture were concerned) by the historical and critical survey of Venetian painting, the art in which Venice achieved the greatest and most world-wide of her successes. To say anything new or special about the Venetian school of painting, in the course of a general chapter of limited extent, is what can hardly be expected of any writer in the present day; but M. Yriarte's remarks are at least always coloured by his own individuality of style and feeling, and present examples of good general characterisation expressed in a few significant sentences. His definition of the peculiar genius of Venetian painting in the introductory sentence of the chapter (to which an engraving of "Titian's Mistress" forms an appropriate vignette) is truly felt: "Ce ne sont ni des penseurs profonds, ni des esprits pondérés, ni des ascètes transfigurés par la foi; mais de libres esprits qui conçoivent sans effort et qui exécutent sans fatigue, des cervaux presque insouciants qui produisent comme la plante donne sa fleur, comme la fleur donne sa fruit, sans qu'on puisse tirer le leurs œuvres des déductions philosophiques." This is an admirable expression of the aspect in which Venitian painting, as a result, presents itself to the mind; though it would hardly be correct to assume that such work as that of Titian came to perfection without much mental study and thought; nor does the author, very likely, mean to infer otherwise. Another remark, that the Venetian painters are "the first decorators in the world," is an excellent generalisation as applied to the art of Veronese and a large number of other less eminent painters; but from this description, again, it would be absolutely requisite to eliminate Titian and Giorgione. In coming to speak specially of Titian, however, after going briefly through the preceding epoch, of which the Bellini were the central figures, M. Yriarte quite rises to the height of his subject, describing the career of the artist as a "*siècle*" in itself, "so brilliant, so productive, so full of honours, successes, and triumphs, that we pronounce his great name like that of a prince"; which, indeed, is too small an expression to do justice to Titian. When he touches on landscape, says the author, he does so "*avec une autorité extraordinaire*," which is a very true but hardly translatable way of putting it; and the expression in regard to the "Peter Martyr,"—"Quelle admirable combinaison de la forme humaine avec la silhouette auguste des grands arbres séculaires!"—shows how truly he has felt the spell of that grand lost painting. His short summing up of the nature of Giorgione, as man and artist, from whatever sources derived, is both comprehensive and highly in accordance with the feeling which the art of this unique painter conveys to us:—"The poetic figure of one who is at once a gay cavalier and a painter of genius; who has shaken off the yoke of his predecessors; carries on work and pleasure simultaneously, making life a kind of 'Decameron'; traversing Venice with lute in hand and dagger at his side, always in quest of amorous adventures and of emotions, ready equally for a duel or a serenade, adored by women and distrusted by men; an amiable braggadocio, jealous, violent, and generous at once,"—just the character, in short, which society has always pretended to disapprove and really admired; and if his pictures do not bear it all out, we certainly seem to read it in his portrait. In referring to his works, M. Yriarte overlooks, or is not aware of the fact, that the "Fête Champêtre" of the Louvre is a painting the authenticity of which has been much questioned. It would, perhaps, be a fair retort, however, to say, "to whom else could one assign it?" But what readers should turn to M. Yriarte's pages for is not so much exactitude or novelty in regard to history and criticism, as that vivid sympathy with his subject, and power of equally vivid expression, which render his pages so lifelike and suggestive.

The author pursues the subject of Venetian painting through its decadence, marked by names many of which we associate with a peculiar grace and charm of their own, of a quality not to be found precisely in any other school; he draws attention in passing, we observe, to the superior place which is taken by Jacopo da Ponte (Bassano) when judged by his best works in Venice, as compared with that assigned to him on the ground of his other and inferior works. The two architectural painters, Canaletto and Guardi, come in for due share of notice, and we are quite with M. Yriarte in his judgment that the latter has the more force and genius of the two; though he considers that Canaletto, perhaps owing to the less imaginative character of his art, gave a more accurate impression of Venetian architecture and general topographical character. This is likely enough; artists of high imaginative power make bad topographers: Turner's essay to paint the harbours of England is a notable instance; he made a set of grand coast pictures, which the frequenters of the harbours indicated would mostly have found difficulty in recognising. It is curious how completely Canaletto's face, in the portrait of him which is given, explains the unsympathetic conventionality of his art.

The chapter on "Le Mouvement Littéraire" is chiefly interesting to us from the remarks on the Aldine printing foundation, and the circumstances which led to it, and on the subject of book illustrations. In fact, the Venetian school of literature is not of very high interest even to those whose study is essentially and primarily literature: it includes no great names. Among the illustrations to this chapter is one that is interesting for more than one reason, the *fac-simile* of a portrait of Pietro Aretino, drawn on wood by his distinguished friend Titian, and which formed an illustration to a book entitled "I Mondi del Doni," printed at Venice in 1552, by Marcolini. The portrait is a profile showing Aretino wearing an elaborate gold chain which had been sent to him by some royal admirer; and the forcible character expressed in the head gives some explanation of Titian's friendship for this vicious man and brilliant *littérateur*. The *fac-simile* of the opening pages of the Latin edition of Herodotus of 1494, printed at Venice by Gregorio, is really curious; it shows an admirable bold block type, the upper part of the page occupied by a quaint illustration representing the historian writing at a desk crowned with bays by an outlandish barelegged figure; the page, which is small in itself, is surrounded by a wide border of freely-designed arabesques, in white on a black ground, with two small *cartouches* containing drawings of scenes of an eminently Pagan character, illustrative of some of Herodotus's "facts": the arabesque border, with a different design in the cartouches, the author has used as an appropriate border to the title-page of his own book. He mentions also the illustrated edition of the "Songe de Poliphile" (1499) as showing remarkably high artistic character in dealing with the rude resources of the wood engraving of the period; a specimen of one of the illustrations is given, a female drawing along a large ornamental trophy on wheels, the whole drawn entirely in outline, with a very free and flowing line; there is something very poetic and fanciful about it. The book, the illustrated edition at least, is rare now; the offer of a copy is always a point in a dealer's catalogue.

In the chapter on "La Verre et la Mosaïque" we come on the subjects which, next to the Venetian school of painting, have gained for Venice the widest artistic fame, and which, in fact, are more a speciality of artistic production in connexion with her name than even her painting. In glass-work, as the author says, the Venetians have acquired a reputation without a rival, as well by variety and fancy of design as by beauty of workmanship. Why this art of glass-making was so specially taken up at Venice there is hardly any historical evidence to show; the first documents in which it is mentioned assume the existence of the manufacture as an established fact; the oldest being, according to M. Yriarte, an order of the Council in 1292 for transporting the glass manufactory from the Rivo Alto to the island of Murano, which has ever since been the principal scene of operations in this art. But the author's suggestion that a style of ornamental art which is so distinct in character from most Mediæval European art should have been brought from Eastern sources originally, is probable enough, if we consider the obviously Byzantine origin of the mosaic art of Venice, and the generally semi-Oriental character of her tendencies in art and in feeling. Indeed, the glass-work of Venice presents, in the general character of its design, a peculiar and almost unique blending of classic refinement of form and outline with Gothic caprice and fancifulness. But if this were so, it is obvious that Venice very soon put her own stamp on the art, and aimed especially at keeping control over it as a manufacture peculiar to herself, even in regard to the practical processes involved. So early as 1275 there is a decree in existence forbidding, under pain of confiscation, the exportation from Venice of the glass in its condition of raw material, or even of broken glass which could be analysed. And the author mentions that he had found, in the archives of the Frari at Venice, an interesting parchment document containing a commission from the Grand Vizier of the Sultan to the Turkish ambassador at Venice, to order from Murano 400 "mosque-lamps" with sentences from the Koran in coloured enamel, according to a design drawn on the parchment and accompanying the order, and which represented a usual form of Turkish lamp. M. Yriarte unfortunately does not give the date of this document.

It is unnecessary for us to dwell on the description of the process of mosaic and glass work at Venice, which is given by the author; enough has been said on these points in our columns at various times; we may notice with approval his remarks on the quality which has given more than anything else its special and high artistic interest to Venetian glass, the preservation of the essentially ductile and flexible character of the material when under manufacture. "That which characterises especially," he observes, "the Bohemian, French, and English glass productions, is their transparency and brilliance, qualities which they possess in a high degree, and which have attained in the present day their greatest perfection. In fact, the foreign manufactures" (he is speaking from the point of view of a Venetian) "have one main object—to imitate crystal. Thus, having secured in the material the qualities above mentioned, their aim is to give to their productions, after the molten glass has been shaped and has hardened, a still further brilliancy of effect by cutting, and to obtain by this mechanical means the richness, the variety of forms and vigour of

* Venise: Histoire, Arts, Industrie, la Ville, la Vie. Par Charles Yriarte. Paris: Rothschild.

contours, which alone can render them successful in the market. But to do this is to demand from glass what is not really due from it, and to change its nature, in robbing it of its two most essential qualities, lightness and ductility; and the glory of Murano is to have preserved the character of the material and made it accomplish that to which it is best suited." For this reason, he observes, Signor Salviati wished to keep the name of "glass," pure and simple, for the style of manufacture practised at Murano, and to call the glass made by the casting and cutting process "crystal" or "*verre cristallisé*." The following comment on the process is worth translating, as it brings out well the essential difficulty of the manufacture and the qualities required for success in it:—

Much patience is necessary, much skill, care, and quickness of hand as well as of mind, to be prepared against the thousand incidents of the fabrication. When we consider that all the manipulations of the glass are accomplished under the action of fire, to which each piece is submitted many times (occasionally fifty or sixty times successively) before being completed; and that the same fire which enables the workman to give such life to the material may a moment afterwards annihilate his labour by the softening of the glass and its consequent change of form; when we picture to ourselves how he is obliged often to give up the outline which he had intended and to realise another prompted by the necessity of the moment; we must recognise that it requires no little talent to triumph over such obstacles. In other industries,—such, for example, as those of porcelain and faïence,—the workman or the artist, working upon materials which are cold and obedient to his will, can take time over his work and go lovingly over and over it until he has completely satisfied himself. In the manufacture we are speaking of, on the other hand, all must be sudden, rapid, and spontaneous; and this is what constitutes the great difficulty of this beautiful art.

And unquestionably it is this necessarily instantaneous and free character of design which gives to Venetian glass a great deal of its peculiar life and interest. At the same time it must not be forgotten (as it sometimes is) that the object of the designer is to overcome the difficulties of the process, not to illustrate them; that a glass is not more valuable or more artistic for appearing to be stuck crooked on its stem, or showing a remarkable and awkward departure from the circular form when that form has been intended. Such slips show certainly that the artist has been treating the glass in the right manner, as a ductile material; they also show that he has not quite succeeded in his aim. Before quitting the subject, we may add that M. Yriarte's chapter on glass is very fully illustrated with many beautiful and characteristic designs. In referring to the art of mosaic he particularly alludes to the series of portraits of great painters in the South Kensington Museum as an important instance of the modern decorative application of the art.

We must pass over the chapters on costume and *dentelle*, interesting as they are, especially in regard to the illustrations of costume taken from old engravings. A whole chapter is devoted to the subject of "the Doge," that most splendidly surrounded and sumptuous of all the "chief magistracy" offices which have ever given to a republic the semblance of imperial magnificence.

One illustration really worth mention in this chapter is the reproduction of eight plates engraved by Pagani in 1550, which form a continuous representation of the Doge's state procession. It may be interesting just to tabulate the order and constitution of the "Lord Mayor's Show" of Venice: these are the items:—

The Doge.
The Doge's umbrella.
Ambassadors and orators.
The Doge's sword.
The most illustrious Signory.
The Patriarch.
The holy vessels and other sacred "regalia."
Secretaries.
The Doge's chaplain.
The Doge's cushion and chair.
The Grand Chancellor.
"Il Ballotino."*
Ambassadors and their attendants.
The Doge's trumpeters.
The Doge's attendants and grooms of the chambers.
The Canons of St. Marc.
The standards of the Republic.
The Doge's heralds.
Six silver trumpets.

The Doge, who heads the procession, is an old man, apparently almost bowed beneath the weight of his gorgeous dress; and his umbrella taxes the strength of the bearer. The "silver trumpets," which bring up the rear of the procession, are about 9 ft. long, and a boy walks before each trumpeter to hold up the further end of the instrument for him. A decorative background to the whole is formed by a double row of mezzanine and first-floor arcaded windows, from all of which the heads of spectators look out. The whole thing is very interesting, and, in the dress and attitudes of the processionists, conveys the idea of being a literal representation. A still more curious and a more primitive engraving (date not stated) is given, representing the ceremony of the wedding of the sea, showing the Ducal Palace, with a light upper story pierced with windows, quite different from the present finish of the building, which gives so much of its peculiar character.

The long concluding chapter on "La Vie et La Ville" gives many illustrations of the personages typical of modern Venice, and of various interiors and peculiar corners of the city. In the description of the impressions received on entering Venice from different quarters, M. Yriarte finds a natural place for the display of his unquestionable gift of picturesque language and vivid description. To feel the full impression of Venice on a first view, the visitor should approach it from the sea at mid-day and in full sunlight. He will see the place rise gradually from the sun-lit sea like a city in a dream—a dream, however, which he will find almost surpassed by the reality when he approaches near enough for the eye to reduce the fairy vision to its constituent elements. But there is choice of another impression for him if he approaches the city at night by the railway which now connects it with the main land, and then takes to the time-honoured Venetian conveyance. "What a strange impression will he then experience! To glide silently, in the depth of night, upon those noiseless black waters; to see tremulous lights pass to right and left; to hear the passing sound of an oar which stirs the water; to defile between hedges of architecture, processions of flying palaces which are rather felt than seen, as in an etching of Piranesi; to pass under bridges and hear cries of which one cannot catch the meaning; to graze every now and then against black canopies which glide by in the darkness as silently as your own; then from time to time to perceive, for a moment, the outline of a figure that bends over its oar, a lamp that burns in some angle of the canal brilliantly reflected in the water, a window lighted up and making a momentary glare; to progress through narrow lanes, to turn, and tack, and veer about without feeling any sense of movement, and then to draw up suddenly at a staircase whose steps plunge downward into the water, to enter by a noble vestibule, of a grand and proud style of architecture, a palace streaming with lights, full of life and movement, full of business-like people, who recal you, after your singular voyage, to the commonplace incidents of hotel life: it is certainly the strangest of dreams, and a sort of ideal nightmare."

* This officer is a boy. Was he, as the name seems to imply, the official whose duty it was to carry round the ballot-box in council?

JUDICIAL EXPLANATIONS OF THE ECCLESIASTICAL DILAPIDATIONS ACT, 1871.

MANY of our readers will probably not need to be reminded that in the year 1871 the Legislature passed an Act which embraces in a comparatively short and untechnical form the existing rules in regard to Ecclesiastical Dilapidations. No branch of law more needs to be plainly and straightforwardly exposed than this which affects the interests of thousands who are not lawyers, and the majority of whom can ill afford the costly amusement of legal experiments. We do not propose here to discuss either the policy or provisions of this Act, but merely to point out how some parts of it have, since it has been put in practice, received certain judicial explanations of the highest legal importance as regards this question of ecclesiastical dilapidations. And we venture to think that the matters which we shall refer to will have an interest not only for surveyors and other ecclesiastical officials, but also for clergymen who may have to do at any future time with the existing Act.

The first point on which it is necessary to touch are the provisions contained in section 29, which is the first which has to do with vacant benefices. It runs as follows: "Within *three* calendar months after the avoidance of any benefice . . . . the Bishop shall direct the surveyor who shall inspect the buildings of such benefice, and report to the Bishop what sum, if any, is required to make good the dilapidation to which the late incumbent or his estate is liable; and the late incumbent, his executors, or administrators, shall have right of entry at reasonable hours with his and their surveyor upon the premises of the vacated benefice until such time as the question of the dilapidations has been settled." The first point which has served to explain this section arose in this way. The bishop made his order within the required three months, but after that period had elapsed, the surveyor inspected the buildings, and reported to the bishop that a certain sum was payable by the late to the incoming incumbent in respect of dilapidations. Thereupon the old incumbent refused to pay this sum, on the legal ground that under the above section the surveyor should have made his inspection and reported to the bishop within three months from the time when the benefice became vacant. But the judges, who comprised the Exchequer Division of the High Court, had no hesitation at all in deciding against this defence, and accordingly the case of Gleaves *v.* Marriner (1 Law Reports, Exchequer Division, 107) has decided that it is not necessary that the inspection and report should be made within three months from the time at which the benefice became vacant. But a more difficult question arose in the course of last year, and one which is clearly far more important, and in some respects can hardly be viewed with as much satisfaction as that to which we have just alluded. In the case of Caldow *v.* Pixell (46 Law Journal Reports, Common Pleas Division, 541), the Bishop of Carlisle directed the surveyor of the diocese to inspect the buildings of the recently-vacated benefice more than three months after the avoidance by the late incumbent. Here, of course, the bishop had directly transgressed the provisions of the statute, and there seemed therefore to be some good grounds for the refusal of the late incumbent to pay the amount required to make good the dilapidations. At the same time it is obvious that if this view prevailed the incoming incumbent, through no fault of his own, would be put to large expense, and that the late incumbent would have got rid of a clear legal, and one may almost say, moral liability, which has been the custom of the English Church for a long time. The question therefore arose, was this provision a mere direction, of no obligatory force, or imperative, and entailing, by neglect of it, a nullification of the subsequent proceedings? The Court decided that it was directory only, and that therefore the subsequent proceedings remained valid, and that consequently the amount due from the late incumbent must be paid by him. It is obvious that this decision was just, as if it had been to the contrary very serious injury might have been done in the future, when, by any unforeseen accident, a bishop failed to make the required order. At the same time it is obvious that high ecclesiastical functionaries, and those who guide them in such matters, grievously neglect their duty when they fail to make an order within the required three months. For when time elapses after a benefice becomes vacant, it is clear that all sorts of things, in consequence of bad weather and other causes, may happen to the building in question, and that the outgoing incumbent may have to pay more than he would otherwise have been liable to; and we confess that we should have liked to have seen in this Act some penalty payable by the bishop or his registrar if the provisions of the Act in this respect were not carried out. For as the law at present stands, this part of the statute is very little more than a mere empty form of words.

The remaining point introduced some curious and important questions, and we shall best explain its results by detailing, first of all, the facts of the case of Wright *v.* Davies (46 Law Journal, Common Pleas, 49), where there were two decisions, that of the Court below being subsequently affirmed by the Court of Appeal. Two incumbents agreed to exchange their benefices, and also agreed that no payment should be made on either side for dilapidations. But, as harmony does not always reign supreme in the Church, it happened that the two clergymen in question fell out, and that one of them sued the other for a sum in respect of such dilapidations. Thereupon the other pleaded the agreement, and, by the judgment of two very competent

Courts, with success. Therefore the Ecclesiastical Dilapidations Act, 1871, in no way prevents two clergymen from exchanging livings, and from making an agreement that they shall pay nothing to each other in respect of dilapidations. But this, it must be observed, is simply an agreement *inter se*, and in no way interferes with the provisions of the Act in question. The bishop must make his order the surveyor must inspect and report, and the repairs must be done and the provisions of sections 37 and 40 must be complied with. These sections are as follow:—"The new incumbent shall, as, and when he shall recover the said sum, or any part thereof, forthwith pay the amount recovered to the governors; and if and whenever he shall recover any further part of the said sum, he shall in like manner forthwith pay to the governors the further sum so recovered." "The new incumbent shall, within six calendar months after the date of the order, pay to the governors . . . such sum . . . as will make up the sum stated in the order as the cost of the repairs." Therefore, as the Master of the Rolls very neatly expressed it, "the effect of the Act is not to make the new incumbent a trustee of the action, but a trustee of the sum recovered." In other words, he may make what agreement he pleases with the outgoing incumbent, and he is not bound to bring an action against him for the amount of the repairs, but he is bound to pay over such sum to the Governors of Queen Anne's bounty (and it matters not to them whence the money comes), and to put the buildings into a proper state of repair; and if he does not so do the amount may be recovered in a legal form by these officials. This decision seems to us one which is most satisfactory from a legal and general point of view, and to do full justice to all parties. But the facts of this same case also point a further moral; for it is clear that the plaintiff was not aware of the disparity in the amount required to repair the buildings of which he became possessed by his exchange. Therefore it is obvious that no clergyman should exchange livings without first ascertaining by means of a competent surveyor the state of the buildings of which he intends to possess himself, and surveyors should be equally careful to ascertain to the full the amount of repairs which will be required, as otherwise it may happen that when a bargain is completed the parties to it will find that they are put to all sorts of expenses for building and repairing, of which they had no sort of notion. As we have said, the above case clearly shows that the sufferer by the exchange can obtain in such circumstances no redress from the incumbent with whom he has made the contract, but that this contract is no bar to his liability to the Governors of the Queen Anne's Bounty. "It is an ill wind," says the proverb, "which blows nobody any good," and we can accordingly only hope that the misfortunes of the litigants in the cases upon which we have here touched will render the way of their brethren and ecclesiastical officials—whether bishops or surveyors—more clear.

EARLY NEW ENGLAND INTERIORS.

THE book which is sent over to us under the above title,* appears to be the first published indication of the adoption in America of the Queen Anne revival. At least, the author of the book, Mr. Arthur Little, whom we presume to be an architect, as he says the sketches are "the result of a summer's work, undertaken for his own pleasure and instruction," tells us that it is thought by many in his country that "with the revival of the so-called Classical style in England, as the Queen Anne or Free Classic" (a sentence which implies some confusion of ideas) "we on our side of the water should revive our Colonial style, which is everywhere marked with peculiar dignity, simplicity, and refinement"; and accordingly he took the sketches from which these illustrations are made, with the idea that they might in such a case become especially interesting, while in any case they form records of a style of house architecture, the original models of which are fast disappearing from American soil.

The short preface in which these remarks, and one or two suggestions as to the way in which these New England houses may have come to be built in the style which they present, are embodied, forms the only statement of the *raison d'être* of the book, which, beyond this, is simply a collection of lithographed drawings, mostly of interiors, with an occasional explanatory note. The reader may remember the notice of an illustrated work on "American Interiors" which appeared in our columns some time since, a book which purported to give illustrations of some of the best modern American habitations; and Mr. Little's book does for the older houses what that publication did for the modern ones. The reader must not, however, expect to find in it such work as may be found in the best Jacobean and Queen Anne interiors on this side of the Atlantic. It is quite true that the similarity in some of the details, and general appearance of the interiors, is so completely a repetition of what had been left in the old country, that we may very reasonably adopt Mr. Little's supposition, that some of these houses were the work of enterprising English carpenters who had emigrated to New England to try their fortune. The parlour in "Nichols House" (built about 1780) for instance, might be supposed to be one of the simpler of the Queen Anne revival designs of the present day among ourselves, with the orthodox "brass fender" and all, except that the plates are in the cupboard instead of being hung about the wall. It is a very nice specimen of a simple interior; but there are but few among the more ornate specimens which represent anything like a purely English taste; for the most part it is more like the reminiscence of the English taste, intended as an imitation, but inaccurate and deficient in refinement of detail. In one sense this makes the specimens all the more interesting, no doubt; but, if they are fairly represented here, they are more to be called interesting as old work than valuable as models for new work,—a remark which may apply, indeed, to a good deal of the real original Queen Anne style, and, therefore, *à fortiori* to specimens of its reproduction on another shore by those who had half forgotten it.

We thank the author, however, for having given us illustrations and a record of these early New England houses, for we entirely agree with him that they are of the greatest interest, and perhaps fully as much so to us as to his own countrymen. Their style reminds us, with peculiar force, how comparatively recent is the breaking off of that branch from the parent stem, which has developed into such a goodly tree; how close and near is the bond of race between us and those "cousins" who in many respects have come to such a different habit of thinking and living from ourselves. It is almost strange that such features as some that are illustrated here, some of these old windows and fireplaces, and doors with friezes and cornices over them, should come to us from a land of republicanism, a new country; they seem so connected in our associations with ancestral halls and old family traditions, such as only flourish in an ancient country with a long history behind it. And the fact is that in not a few cases the houses in which these details are found were really built by families whose ancestral name and fame are still known in England, and who were still proud of the family name in their exile from a country not then "moving to their mind," and long kept it attached to their New England place and mansion,—"called their lands after their own names,"—in very un-republican fashion. And so, too, we see here the architectural forms in house, or furniture, or fittings, which belonged to the old country, adopted and preserved in the new, and with the forms a great deal of the old feeling preserved, in all probability, also. The contemporary American poet (Whittier), whose lines Mr. Little quotes on his title-page, seems to feel this also: New England is the last abiding-place of the old aristocratic idea:—

> "Her home is brave in Jaffrey-street,
> With stately stairways worn
> By feet of old colonial knights,
> And ladies gently born."

And it is to such associations that these illustrations take us back, now that the bones of the old colonial knight are long since dust, and his good sword rust; for he had a good sword, and knew how to use it. It must have been, too, in connexion with some such home as one of these that Longfellow wrote his poem of "The Old Clock on the Stairs," of which some of Mr. Little's illustrations at once reminded us, they harmonise so exactly with the "local colour" of the poem.

As to the character of the work illustrated, considered from a more purely architectural point of view, there is little of external architecture, in which these New England dwellings would appear to have been very deficient, the few exterior views that are given showing only very plain houses of an almost cottage character, except as to size. The majority of the drawings represent interiors, and among the best of them are the staircases. It must not be supposed, however, that any of these exhibit that solidity of style and execution which belongs to the best English examples; as drawn in this book, at all events, the balusters are thin and meagre, and the general effect rather scamped. The only bit that reminds us of first-class work of the original Free Classic period in England is the newel and balustrade of the stair at Cabot House (*circa* 1755); here the balusters are rather wanting in substance, but their free treatment, all with slightly varying designs, is very pretty, and the newel with its spiral twist seems a capital bit of work. Cabot House, according to Mr. Little, is known to have been built (as he suggests that others may have been) by a carpenter direct from England—so at least he mentions in his preface, but without giving the authority for it. A feature which would appear to have been a great favourite with the New England house-builders, and also with the author (for he gives two or three very similar examples of it), is a semicircular-headed cupboard, with the ceiling inside terminating in a kind of semi-dome ornamented with flutings, and the edges of the shelves cut quaintly into an ornamental outline, which looks pretty and fanciful. The front entrance of "Nichols House" at Salem shows a Queen Anne or "Early Georgian" door with pilasters, little festoons, and a radiating fanlight, just as we may see it in Harley-street and Wimpole-street.* The chimney-piece at Waters House, built by "one Hosmer" about 1795, is just the style of thing we are familiar with in houses of the same date in England, and a pretty specimen in its way, only let our American friends understand that we consider that "way" to be a very weak and flimsy one. The chimney-piece in the next drawing, from Devereux House, looks still more like an old friend, and is a very good specimen of the Adams style. The before-mentioned Waters House, by the way, the author says contains the best collection of old Colonial furniture in the country; a remark which tempts us to inquire why he did not include some of the furniture in the drawings, instead of leaving the rooms all with bare floors. The side of the parlour in Hooper House, at Marblehead, said to have been the work of the same English builder who produced Cabot House, though looking very bare in the drawing, is very bold and effective in design, with its old-fashioned broad window-seats at the back of deep recesses. We do not remember to have heard of the town (or locality?) of Marblehead among actual existences before; the name seemed familiar nevertheless; and, in fact, "Marble Head" was the name of the country residence of that exemplary City man, Hobson Newcome, esq., as readers of Thackeray may remember. "Lee House," built by Jeremiah Lee in 1768, must have been a fine family house in its day, to judge from its wide and ample staircase, of which a drawing is given which is one of the best and most effective in the book. Mr. Little adds, "the balusters, of which there are three on each stair, each being different, are, as well as the wainscoting of the hall, of very fine old mahogany. The cornice, pilasters, and architraves of the window on the staircase are of pine, painted a good grey. The walls are covered with a panelled paper in black and white. The house has been used for seventy years as a bank, and is accessible to any one:" though whether that latter condition is in every way quite incident to the objects of a bank, seems rather questionable. The details of the newel and balusters are very similar to those of Cabot House, so much so, indeed, as to raise a question whether it was worth while to illustrate both in detail. The parlour chimney-piece in the same house is of later date, and is interesting, the author observes, as showing the intrusion of French taste upon the original grave English style, which it certainly does show; as a matter of design it is, however, vulgar and ugly to a degree. In regard to the painting of the stair-

* "Early New England Interiors: Sketches in Salem, Marblehead, Portsmouth, and Kittery." By Arthur Little. Boston: A. Williams & Co. London: Trübner & Co 1878.

* Except where the fanlight has been replaced by a single sheet of plate-glass, which has been done in some cases, to the great annoyance, even indignation, of some house-owners of conservative tastes in these neighbourhoods; and we must say the fan-pattern was better than the bare glass.

case in Lee House, we may observe that there seems to be some undefined notion about the beauty of neutral pigments floating in Mr. Little's mind. Referring to an illustration from Langdon House a few pages further on, he observes again, "the woodwork is painted a good grey." In England we think it of the essence of woodwork, old woodwork especially, that it should be unpainted. Is the "good grey" in these cases original, or is it (as we should think more probable) a subsequent defamation of the material?

Though, however, we have been interested in turning over Mr. Little's illustrations, with all their suggestions of association local and historical, and though we praise him for doing them, he must pardon us if we cannot altogether praise his manner of doing them. We must conclude that the standard of draughtsmanship in America is not high, for we notice just the same sort of faults in these illustrations that we saw in "American Interiors": the lithographs are coarsely drawn and shaded, splashed over with lines as if cobwebs had been spun over the paper, the strong shadows coarsely blotched in, and (worst of all) the perspective constantly careless and defective. If this passes muster as good architectural drawing in America, our cousins are, at all events, far behind us in that particular; drawings like these would be thought decidedly third-rate in England or France. Some English draughtsmen have certainly favoured a very rough and untidy style of late, but it is a style with a method and force in its roughness, which these American drawings are quite without. What makes this clumsiness of drawing more noticeable is, that the book is got up regardless of expense in other respects, the lithographs and the short notes being alike printed on thick cream-laid paper, with ample margins, and interleaved, in a manner which with us would only be indulged in for illustrations of a high character of finish and elaboration, which these most assuredly are not.

DOINGS IN DEVON, DORSET, AND SOMERSET.

THE Local Government Board inspectors have been exercised for some weeks past on the head of the water supply and sewerage and drainage matters in a few of the West of England towns and villages. For the third time in about ten years, the town of Honiton, famous for its lace, has made itself remarkable for its factious quarrels among sections of its townfolk, each time resulting in a Government inquiry. We have nothing to say as to the comparative merits of rival schemes, nor are we inclined to pronounce which is the best. The fact is apparent, that the local authorities have for years hesitated, or rather neglected, to provide an efficient system of sewerage and water-supply for the town, and they have now only to thank themselves if the Local Government Board enforce the penal clauses of the Public Health Act. To escape the humiliation of being deprived of their powers, relieved of their duties, and the town mulcted in the costs of carrying out the necessary works through the instrumentality of the Central Board, it behoves the local authorities of Honiton to at once set themselves to the task of providing the urgent wants of the town.

There are, it appears, 150 private wells in Honiton, besides the sources of public supply; but the public wells, pumps, or fountains, even if proved to be sufficient in yield for the wants of the town, cannot be continued as sources of public supply for drinking purposes. Analyses have proved that the water of several of the wells is impure and contaminated with sewage matter. The inspector of nuisances in Honiton certainly deserves an embossed leather medal with a pair of tin clasps. He assured the Local Government Board Inspector, and other hearers at the inquiry, that all the drains were perfectly clean, and as to a certain well in Chapel-court, "He never saw a cleaner well in his life, there was not a quart of sewage in it." The force of nature can no further go after this evidence, and Honiton may be congratulated for its enlightened inspector of nuisances. When several cases of typhoid have been clearly traced to the drinking of the water of the wells in Honiton, further testimony in their favour is a mockery and a delusion.

At Dorchester the Government Inspector sat in reference to the application of the Town Council to borrow 8,000*l.* for providing drainage and water supply for the new district recently formed at the western end of the town. The surveyor stated that it was intended to carry the sewage into Frome as at present. As some difficulty was likely to arise in respect to the disposal of the sewage, it was recommended that the subject should be re-considered. Apart from the town supply of water and for the use of the barracks, it is proposed to erect an elevated reservoir at a cost of 1,350*l.*, to provide a new engine at an outlay of 350*l.*, and a new building at an expenditure of 318*l.* The Government will contribute 1,200*l.* of the cost. The Inspector of the Local Government Board promised to report favourably of the scheme of water supply for Dorchester.

The town of Martock, in Somerset, claims notice as well as Honiton in respect to her wells, and also in regard to her churchyards, or those included in that district. Indeed, throughout a wide extent of Somerset, as we have shown on previous occasions in these pages, the town wells and the churchyards act and re-act upon one another, and the unfortunate townsfolk, principally the working poor, are the chief sufferers. In many towns a number of habitations of the poor are backed out against the churchyard, and the wells of the towns and villages are not only polluted by the air of the miserable homes in which the poor are obliged to live. The chronic state of these homes is one of dampness, disease, and death; and could it be otherwise with churchyards in rear and open sewers in front? It will be remembered by many that we furnished pictures of the houses of the poor in several towns in the neighbourhood of, or not far distant from, Yeovil, and an attempt was made in some instances to deny our statements. The defender of one notorious village smiled at the idea that his model district could be unhealthy, because, forsooth, the hedgerows in sight of the poor people's homes in the village were "belted with primroses." Some of these towns which we noted have improved a little since 1870-72, and later; but the following statement, made a few days ago by Prebendary Salmon, at a meeting of the Martock Agricultural Society, will confirm much of what we have over and over again written in these pages:—

"He was more strongly of opinion every day that the churchyards throughout the country ought to be shut up altogether. In his own deanery, of which he had been rural dean for eighteen years, there were twenty churchyards, only four of which fulfilled the requirements of the Burial Acts as to sanitary matters. Most of those churchyards were poisoning the wells in their respective neighbourhoods and doing an incalculable deal of mischief to the people living around them. Six out of the twenty were rapidly filling and ten were utterly bad, and the sooner they were closed the better. He acknowledged that the assertion was a sweeping one, but he believed that the time was come when the churchyards should be closed. The Burial Acts enforced that there should be no cemetery within 100 yards of an inhabited dwelling. He saw no reason why he should have to worship God in the centre of 20,000 corpses, or that he should drink the water which percolated through the churchyard where 20,000 bodies were interred."

There is no necessity at all of making the subject of the closing of churchyards, or their continued use, a religious ground for quarrel. It is not a question of High Church or Low Church or Nonconformity, or who, or who have not a right to burial in them. It is an acknowledged fact that hundreds, yea thousands, of our churchyards still are in a disgraceful condition throughout the country; that they are choke full; and that for hundreds of years they have been heaped into again and again with poor humanity in all conditions of deceased bodily rottenness. The graveyard in these days in the midst of a crowded population is a very grave affair indeed. It is not too much to say that many of our people, like the barbarian victors of old, though in a different way, drink their last draught from the skulls of the dead. A well *per se* is not an evil, but, under the modern condition of towns and life and living, public wells and churchyards are an anachronism and a crime.

Margate.—At the last meeting of the Town Council of the borough of Margate, the surveyor, Mr. Albert Latham, C.E., was voted a gratuity of 200*l.* for past services, and his salary raised to 400*l.* per annum, with a private practice. On the same occasion he was publicly presented by the Mayor, at the request of the Royal Humane Society, with their medallion, for saving the life of an inhabitant who had fallen through the damaged flooring of the Aquarium bridge into the sea during a late storm.

NEW PUBLIC HALL FOR BARNSLEY.

A LONG-FELT want has been supplied by the opening of a public hall for Barnsley, which interesting ceremony was inaugurated on the 18th by two concerts. The town itself may be said to have about 30,000 inhabitants, but it is surrounded by a densely-populated district, in which some of the largest collieries in the kingdom are being opened out. Notwithstanding this, the largest building in the town (with the exception of a wooden structure) would not accommodate more than 400 or 500 persons. Many attempts have from time to time been made to erect a building, but it was not until the year 1873 that anything of a tangible nature took place. In the year named an eligible plot of land on the western side of Eldon-street was purchased for about 3,000*l.* The site is one of the most desirable in the town, being situate in one of the principal streets, and in close proximity to the railway stations. Separate proposals were made for raising the capital, and ultimately it was decided to issue ordinary and preference shares to the amount of 16,000*l.* The total cost is, however, 25,000*l.* The contract was let in the early part of 1876 to Messrs. Bootham & Broomhead, of Leeds, for 17,740*l.* 10s., and the corner-stone was laid in the month of July in the same year, by Master Bruce C. V. Wentworth, of Wentworth Castle, to whose liberality the promoters are greatly indebted. The building, which has an extensive frontage to Eldon-street, has six lock-up shops to the front, and an entrance which is carved with representations of science and art on each side, and a likeness of Mr. H. Harvey, one of the leading promoters, on the key-stone. The front is composed of cut stone, from Matlock. Immediately above the central door is a balcony. The windows are circular-headed and moulded, the whole building being surmounted by a Mansard roof, and a central tower, rising to a height of 136 ft. from the ground level, above which is a flag-staff, 33 ft. in height. The entrance to the ground-floor is a spacious one, and fully befitting the building. There is a vestibule 41 ft. long by 14 ft. wide, from which a large news-room, 57 ft. long by 30 ft. wide, is approached. The reading-room, 34 ft. by 26 ft. and 20 ft. high, is entered from the same. Adjoining is a library, 33 ft. by 6 ft. in length and 26 ft. wide, and a room for the librarian, 26 ft. by 13 ft. A large room is also provided for a gentlemen's club, together with a commodious billiard-room, dressing-room, and ante-room, all of which are on the same floor. On the next floor, which is reached by a commodious staircase, are six let-off offices and the hall-keeper's residence, together with laboratories, &c.; and facing the front are seven other offices, cloak-room, &c. The large hall, which is on the same floor, is entered by two double swing doors, in front of which are screens to protect the visitors from the draught. The hall itself presents a commodious interior, being 144 ft. in length, and 58 ft. in width. It is 40 ft. in height to the under-side of the tie-beam, and will comfortably accommodate 2,000 persons. There are two side balconies, each having two rows of seats. These, as well as an end gallery, are protected by an iron balustrade, painted in blue and white, and tipped with gold. The front area in the large hall is fitted with 1,200 chairs, and the back area, which will seat 800 persons, is supplied with benches. The hall is lighted at the side by eighteen circular-headed windows, with elaborately-worked groined arches. There are also three similar windows at the end of the building, which, like those at the sides, are of stained glass. The ceiling is somewhat elaborately adorned with twenty-four decorated centre-flowers of plaster. There are sixteen gas chandeliers, each of which has twenty-four burners. These were supplied by Messrs. Smith & Sons, Birmingham The stage measures 33 ft. by 38 ft., the height in front being 24 ft. 6 in. It is provided with six splendid scenes, and is well fitted up with traps and other necessary effects. There is a good orchestra, and the front of the stage is so arranged as to be available as a platform for use at public meetings without interfering with the scenes. The large hall is reached from the back as well as the front entrance. In George-yard there are four stone staircases, each 6 ft. 6 in. in width, and there are no fewer than five available outlets in case of fire. The galleries are reached by four pitch-pine staircases, with oak hand-rails. The hall is heated by two of

Hayden & Son's (Trowbridge and Manchester) hot-air apparatus, and in the cornice which surrounds the ceiling runs an ornamental foul-air tube, fitted with one of their patent apparatus. The cornice is a moulded cove. The upper story in front is devoted to the school of art. The department devoted to gentlemen is 70 ft. in length and 27 ft. in width, and lighted in the daytime by eight bulls-eyes and a number of circular glass windows. The ladies' school is 40 ft. long by 16 ft. 6 in. in width, and is lighted by two windows and a glass roof. The entrance to the schools is by a side-staircase from Eldon-street, and this also furnishes access to some of the let-off offices. The schools of art and reading-rooms are heated by Hayden's hot-water apparatus, and the whole of the building is fitted with water-closets, wash-out pans. The architects are Messrs. Hill & Swan, of Leeds. The manager of the building work has been Mr. Hodgson, of Leeds. The whole of the joiner's work has been prepared in Leeds, under the direction of Mr. Armitage; and Mr. T. Westby, the foreman carpenter, has taken an active part in superintending the fittings. The other contractors reside at Leeds.

This hall, which will have been opened to the public when our notice appears, has been erected at a cost of about 25,000*l.*

THE NEW NATURAL HISTORY MUSEUM, SOUTH KENSINGTON.

VISIT OF THE ARCHITECTURAL ASSOCIATION.

THE Architectural Association made its first Saturday afternoon visit to buildings in progress during its present session on the 19th inst., the building selected being the new Natural History Museum at South Kensington, now in course of erection from the designs and under the superintendence of Mr. Alfred Waterhouse, A.R.A. The Association visited the building two years ago, as reported in the *Builder* at that time,* and as the building is now far advanced towards completion, we may add some further particulars to the general description then given. The building has its main frontage, 670 ft. in length, towards the Cromwell-road, and has a total depth from back to front of upwards of 290 ft. The main façade is broken up by a central block, 104 ft. long, having a projection of 26 ft., and by a pavilion at each end, each of these pavilions having a frontage of 53 ft., and a projection of 8 ft. The central portion of the façade contains the grand entrance, which will be through a richly-moulded and columniated doorway 42 ft. wide extreme measurement, and lofty in proportion. This doorway gives access to the entrance-hall, whence the visitor will pass into what is to be called the "Index Museum," which is placed at right angles to the main building, crossing it in the centre, and projecting some distance on the north or rear. This "Index Museum" measures 120 ft. by 97 ft., and has a height to the top of roof of 68 ft. It has a number of recessed bays or compartments along its sides, and its name is derived from the fact that it is intended to be an index to the whole contents of the museum,—that is to say, it will contain, in a comparatively small space, characteristic specimens of the entire collections, and will be, in fact, a complete synopsis of the contents of the whole museum. In the rear of this "Index Museum," and forming a portion of the projection to the rear already referred to, will be the gallery devoted to the British Natural History collections, 97 ft. by 77 ft., and beyond this will be two smoke and ventilating shafts, rising to a height of about 200 ft. (only one of these shafts is at present being proceeded with, however). These smoke-shafts are of considerable dimensions, and will be finished at the top with a pointed roof. They will occupy corresponding angles on the north or rear end of the central portion of the building to those which it is intended shall be occupied by the two south towers flanking the projecting centre portion of the building already referred to. These latter towers are only to be carried up, at present, a little higher than the apex of the central gable (which will be 110 ft. high), having been cut out of the contract at the instance of Mr. Ayrton, when First Commissioner of Works; but we are informed that there is now every probability of their being carried out in accordance with the original design, and in accordance with which they will attain a height of about 200 ft. The end pavilions of the main façade already referred to will be surmounted by long-sided octagon roofs, reaching to a height of 170 ft. from the ground. The main building contains basement, ground, first, and second floors. The basement will be used as workshops, and the three floors above on either side of the central hall or "Index Museum," will be occupied each by a large gallery, 234 ft. long by 50 ft. wide in the clear, with a height of about 20 ft. on the ground and first floors, and somewhat less in altitude on the second floor,—so that there will be six large galleries in the front or main building, besides basement. Running at right angles with the main building towards the north (and capable of further extension at some future time on the vacant land between the new buildings and the buildings south of the Horticultural Gardens), there are three large and three small galleries, all toplighted, running parallel to and on either side of the central projecting portion devoted to the "Index Museum" and the British Natural History collections, giving twelve galleries in all besides those in the main building. The six larger galleries are 137 ft. long by 42 ft. wide in the clear, and the six smaller ones are of the same length and about 20 ft. wide. The height of these six larger galleries to top of roof is 36 ft.; that of the smaller galleries some 10 ft. or 12 ft. less. These smaller galleries are "sandwiched," so to speak, between the larger ones, there being, as we hope we have made clear, three galleries of each size on either side of the central portion of the building, all being top-lighted and no open areas intervening. These transverse galleries are on the same level as, and are approached direct from, the ground-floor galleries in the main building, and from corridors running east and west from the "Index Museum." The upper galleries in the south-east and south-west portions of the main building will be approached by broad and handsome flights of stairs, constructed of Craigleith stone (which has been selected for the purpose on account of its extreme hardness and wear-resisting capabilities), and by open galleries traversing the sides of and looking into the "Index Museum," somewhat after the manner of the galleries to the new courts at the South Kensington Museum. The staircases will be approached direct from the "Index Museum" on the ground floor, and will be carried on boldly-designed and executed arches having a span of 46 ft., and constructed in five rings of brickwork faced with terra-cotta, the thickness of the wall being 3 ft. The walls, externally and internally, as well as the double rows of iron stanchions which assist in bearing the transverse girders carrying the floors of the upper galleries in the main building, are all faced with terra-cotta, the whole of the detail and ornament having been specially modelled under the direct personal supervision of the architect. The whole of the ornamentation of the eastern half of the main building, both internally and externally, is based on extinct species of animal and vegetable life, while the decoration of the western half is based on living species. The floors are as fire-proof in construction as it has been practicable to make them, being of concrete arches turned between rolled-iron joists, all the ironwork having been, as far as possible, buried in the concrete. The ironwork, of which a vast quantity is used in the building, all comes from Belgium. The basement is carried through from the main building right under the "Index" and British Natural History museums, and under the twelve transverse galleries already described, so that the basement is co-extensive with the total area of the building, thus giving enormous space for storage and workrooms. The ceilings of the various galleries are at present to be finished in plaster-work, but it is hoped that they will ultimately be decorated in colour in a manner appropriate to the use of the building. A large sum for decoration was included in the original estimates, but this also was cut out at the instance of Mr. Ayrton. The whole of the top-lighted galleries are glazed with plainly ground or obscured British plate glass, and special openings are made in the roof for carrying off vitiated air. Snow-shoots are also provided in the thickness of the wall-piers between the transverse galleries for the rapid removal of snow to the basement. The heating will be by means of hot water, the apparatus for which will be placed in the centre of the building, beneath the British Natural History Gallery. Messrs. Phipson have been entrusted with this portion of the work. The floors of the entrance-hall, the "Index Museum," and British Natural History Gallery will be paved with Burke's marble mosaic, and as these will be the really popular portions of the museum, they will be the only portions which it is contemplated to light with gas for evening opening. The floors of all the other galleries will be of wainscot oak. Iron doors or shutters by Messrs. Bunnett & Co. are provided for shutting off some of the galleries from each other. The building is well placed some distance back from the Cromwell-road, towards which it has its main façade, and from Exhibition-road and Queen's-gate, towards which are its return or side frontages. The extensive space in front and at the sides is to be laid out as a garden, which, with the building, covers the site of the Exhibition of 1862. The garden will be somewhat below the level of the surrounding roadways, and on the level of the basement floor of the building, a semicircular carriage approach being carried on arches from the Cromwell-road over the garden ground to the main entrance, in front of which will be a handsome wrought iron railing by Messrs. Hart, Son, Peard, & Co. The slating has been entrusted to Mr. Thomas Stirling, and the whole of the terra-cotta has been supplied by Messrs. Gibbs & Canning, of Tamworth. The clerk of the works is Mr. Charles Till, who, in the unavoidable absence of Mr. Waterhouse, courteously conducted the visitors over the works on Saturday last, and gave them a great deal of information. The general contractors are Messrs. G. Baker & Sons, who are represented on the works by their general foreman, Mr. Browning. It is expected that the present contract will be finished by the end of the current year. Seeing that there is comparatively little stone used in the building, the masons' strike has not materially affected the progress of the works. The new museum is probably the largest, if not, indeed, the only modern building in which terra-cotta has been exclusively used for external façades and interior wall-surfaces, all architectural and decorative features included, except the ceilings, floors, and cases to contain the specimens.

* *Builder*, vol. xxxiv., p. 120. A general view of the building appeared in vol. xxxi. (p. 10), and a plan of ground-floor in the same vol., p. 28. These will serve to make the present description of the building more readily understood.

PHOTOGRAPHY AND SCULPTURE.

A GALLERY of casts of the most noted masterpieces of sculpture has been more than once proposed. Such a gallery, it is obvious, should be found in every considerable town, for the purpose of artistic education and pleasure. But until this thing, so devoutly to be wished for, is in existence, it is quite certain that photography is the best secondary means of educating men's tastes in sculpture, and furnishing them with examples of the sculptor's power; and even when this distant day of galleries of sculpture appears, it is plain that photography will still have its place. Those who are unable from physical causes, or from the ties of business, to visit such galleries, will find in the photographic sculpture gallery the next best help. In the recently-published work,* "Masterpieces of Antique Art,"—a title somewhat unfortunately misleading, we have an example of the domestic collection of sculpture.

A few lines may, *en passant*, be fairly given to this useful and pleasing work, since it is the first genuine attempt to make full use of the opportunities which photography undoubtedly offers to the present generation. With the single exception of the Venus of Melos from the Louvre, the Vatican and the British Museum furnish all the examples of antique art to be found in this volume. Some of the illustrations are extremely satisfactory, and next to standing in front of the very objects themselves, are the best substitutes for a personal inspection of these great works of the masters of the past. Thus nothing better could be desired, for instance, than the view of Apollo Belvidere and the Meleager of the Vatican, but some of the others, such as portions of the bas-relief of the Parthenon in the British Museum and the Nile of the Vatican are not so successful. The cause is obvious. The frieze of the Parthenon consists of several continuous subjects, the spirit and grouping of which cannot be adequately shown by taking from them isolated pieces. Moreover, a statue in the round nearly always stands out

* "Masterpieces of Antique Art. Twenty-five Examples in permanent Photography." By Stephen Thompson. Griffith & Farren, London. 1878.

better and clearer as regards outline in a photograph than does a bas-relief; and as regards the Nile, by taking in a portion of the room in which it is placed, the observation is attracted by surrounding matters, and the size of the statue,—colossal in reality,—is considerably dwarfed. The letterpress, too, is generally satisfactory. The writer does not attempt any elaborate criticism of the works contained in this volume. He is content to give a short description and history of each; and on the whole he is wise in thus limiting himself. For it is not possible in the space which can be allotted to a writer in an illustrated work of this kind to write fully and satisfactorily, and therefore it is much better to be content with modest and truthful descriptions.

And it must be remembered,—and here we return to our primary subject,—that the value of collections such as those of photographs of sculpture, lies in the fact that they are ready at hand to serve as illustrations to writers of criticism, and when reference is at any time made to antique art, and so long as the reader has at hand the main features of the history of these great works, he has all that he requires.

Let any one, for instance, take up, for the purpose either of real study or to fill an empty hour from time to time, such a book as the late Richard Westmacott's "Handbook of Sculpture." He at once finds himself completely hampered by the want of examples of the principles laid down. The Vatican is far away. The British Museum cannot be magically brought into the library of the reader, and consequently much of the value of the work which is being studied is lost. Or take such a book as John Gibson's life, in which Greek art is being constantly referred to. Here, again, examples are absolutely necessary. No one can understand this great artist's career without knowing something of the characteristics of Greek work; and the same may be said of works from the topmost pinnacle of subtle criticism,—such as Lessing's Laocoon,—down to a criticism in a penny paper of the work of some contemporary artist. Therefore, we say that photography in relation to sculpture is of the highest possible value, whether regarded from the point of view of the earnest student of art or the mere dilettante amateur, and since sculpture is essentially an art in which form and not colour is the great element, none of those losses of effect take place which make photographs of pictures so unsatisfactory. The form of the work is clearly before the observer; that is the main thing which he requires. Moreover, even those who do not make sculpture any particular object of study or attention, there can be no doubt are artistically benefited by works of purity and simplicity, such as the Theseus or the Discobolus of the British Museum. The principles of the best sculpture, if well grasped, raise the standard of general taste, so that simplicity and grace are preferred in the common matters of the house to inharmonious arrangements and ugliness. On the other hand, the extravagances into which a fashionable following of "high art" are apt to lead persons who ignorantly follow what is the vogue are counteracted; and sculpture teaches these things more directly than the more complicated art of painting. In every way, therefore, the claims of photography to be the vehicle of familiarising men with the great works of sculpture, whether antique or modern, are many and permanent, and the work to which we have referred in this paper is a valuable help to either a study or a pleasure in sculpture.

LAND AND THE SEWAGE.

SIR,—I have read with interest your offer of last week, and hope something effectual will be done. *Guildford* will have to be drained. There is a fall to a sandy waste a few miles off which is the proper place for the sewage. The whole scheme might be tried here under more favourable auspices than in any other place that I know.

The only difficulty that is obvious would be the stirring up the sanitary authority to act at once. The subject is worth consideration.

C.

Sewage Treatment.—At the last meeting of the Aylesbury Local Board of Health it was resolved:—"That the Board are perfectly satisfied with the manner in which the sewage of the district has been treated by the Native Guano Company."

THE ACCIDENT IN THE HAYMARKET.

A NEW sensation for pleasure-seekers at what the City calls the "West End" has recently been provided in a thoroughfare not less world-renowned than the Haymarket; and, unless we are greatly mistaken, the accident will remind those who, in both Houses of Parliament, are seriously disposed to reform the building regulations and municipal supervision of the metropolis, that something more than the mere *laisser-faire* of current practice is incumbent upon the rulers, and necessary to the ruled, of a divided and barely governable capital. What responsibility rests upon the architect or the district surveyor in the present case has yet to be seen. As to the latter his legal duty principally lies in detecting error when it is accomplished, not in direction so as to avoid accident.

It appears, from unimpeachable circumstantial evidence, that warning was given during the afternoon of Thursday, the 17th inst., and before midnight the houses presented a heap of ruins. The two buildings were, one, an old, narrow-fronted house, used as an oyster-shop, and occupied by Mr. Baron; the other a brand new house, planted at the corner of Panton-street and the Haymarket, and flanked in Panton-street by another narrow-fronted old house. To construct the new house it had been necessary to rebuild the party-wall between it and the old house in Panton-street; but in the Haymarket the old party-wall on the ground-floor was underpinned and left standing, a new wall, nearly 50 ft. in height, being built upon it. The new wall, we suspect, proved too heavy for the old one, and hence the sad catastrophe. Nothing, however, can yet be known with certainty.

On Thursday, Mr. Baron and his assistants had noticed that the doors stuck in their frames, and it became evident, from the remarks of workmen who had been called in to ease them, that some movement had taken place. Towards night other warnings, such as falling plaster and creaking wood, were given, and the inhabitants, including Mr. Baron, wisely sought shelter in the street; but, in spite of the threatened catastrophe, Mr. Baron hesitated in escaping, and was buried beneath the materials of his own house.

It was, as we guess, the party-wall between poor Mr. Baron's shop and the new building that must have failed, the larger part of it falling inwards, that is, into the shop. A question may arise as to the character of its foundations, or as to whether the old wall was underpinned throughout its whole thickness. In falling the wall dragged with it the Haymarket façade of the new building. The columns and girders which supported that front all fell inwards, pushing one of the columns bearing the circular corner (always a dangerous arrangement) a little outwards towards Panton-street; and the Panton-street façade followed like the other façade towards the inside of the building. Next the party-wall between the old house in Panton-street and the new building was an iron stanchion which we saw broken short and clear across the middle. In the ruins on the morning after the accident, amid blocks of solid stone, were seen parts of cast-iron columns exhibiting remarkable fractures. The columns, 7 in. in diameter and 1¼ in. metal, were broken, not like match-wood but like a stick of sealing-wax,—clean and clear. One column, near the circular corner, presented a flaw of a somewhat serious character, and the fractures, to say the least, demand examination. The cover-plate of the main girder or bressumer,—over which the stone walls were built,—seemed as we looked on the ruins torn asunder like paper, its end section presenting the appearance of being laminated in an extraordinary fashion.

To build thick and heavy walls on cast-iron columns is a great risk. In this case it seems the owner was building upon his own freehold land. He was investing what was equivalent to his own money in a house which it was his interest to make durable and profitable as long as possible. But the architect trusted to cast-iron columns; and here he did what the law permits and even encourages. Further, there are precedents of wonderful endurance under similar disaster by the maligned cast-iron column. We have before us a photograph of fallen houses in the Tottenham-court-road, taken in May, 1857. There, a cast-iron column is seen erect amid the ruins, though the iron bressumer it supported had been broken clean across, and almost perpendicular with the column. Nevertheless, our own opinions about the advisability of supporting house-fronts upon naked iron are too well known from frequent repetition to need reiteration here. If there still be any sceptics let them ask Captain Shaw at what temperature naked iron succumbs and brings down the whole burden it is able, when cold, to support; and let them study in the Haymarket how a large, lofty, and strong new house can be knocked down by the failure of one wall, because all the superstructure on the other sides above the ground story depended for support upon a few iron columns.

It is only just to add that the office in which the drawings for the unfinished building that fell were made has a deservedly good reputation. We happen to have heard comments some time ago upon the plans prepared by the same firm of architects for the stone building on the opposite side of the Haymarket, almost exactly opposite the fallen houses. Two persons in authority, through whose hands the drawings passed, expressed to us casually their satisfaction and admiration for the business-like and even scientific character of the working and detail drawings.

The inquest was opened on Wednesday afternoon last at the St. Martin's Vestry-hall, before Mr. St. Clare Bedford, coroner. Formal evidence was given as to the finding and identity of the body of Mr. Baron, one of the witnesses being Mr. Lunn, foreman to Messrs. Newman & Mann, who were the builders engaged in the erection of the new structure. Medical testimony was also given as to the cause of death, which was stated to be, primarily, suffocation through pressure of the fallen *débris* on the chest of the deceased. The inquiry was adjourned until Friday, the 8th proximo, at three p.m., in order to suit the convenience of Mr. Vulliamy, Superintending Architect of the Metropolitan Board of Works, who will make a report as to the cause of the disaster.

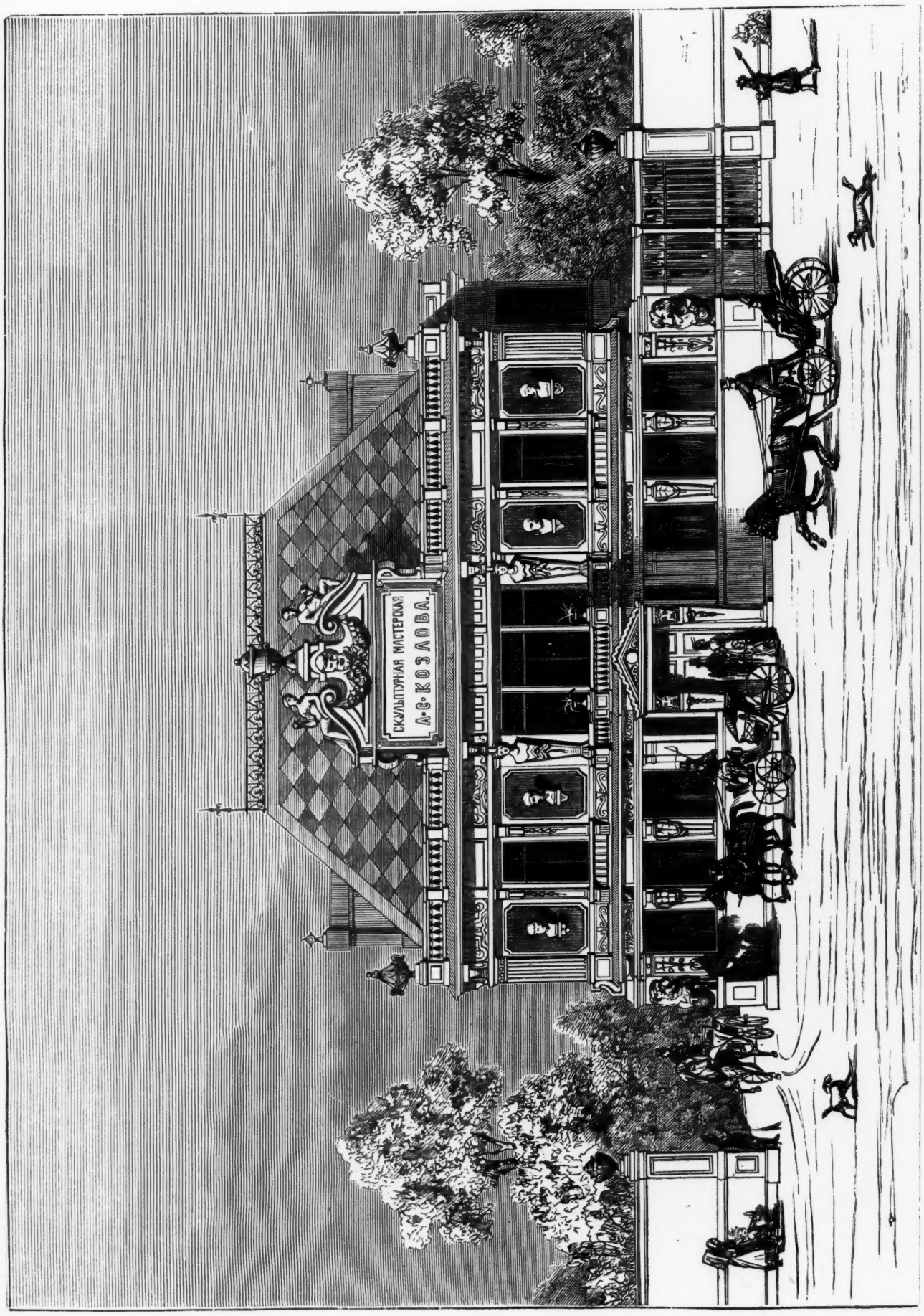
A RUSSIAN SCULPTOR'S STUDIO, MOSCOW.

BETWEEN the barrier of Tver and the road to Petrovsky Park, on the right stands picturesquely a villa residence of tasteful aspect. It is Mr. Kozloff's studio, the façade of which is here presented to the reader.

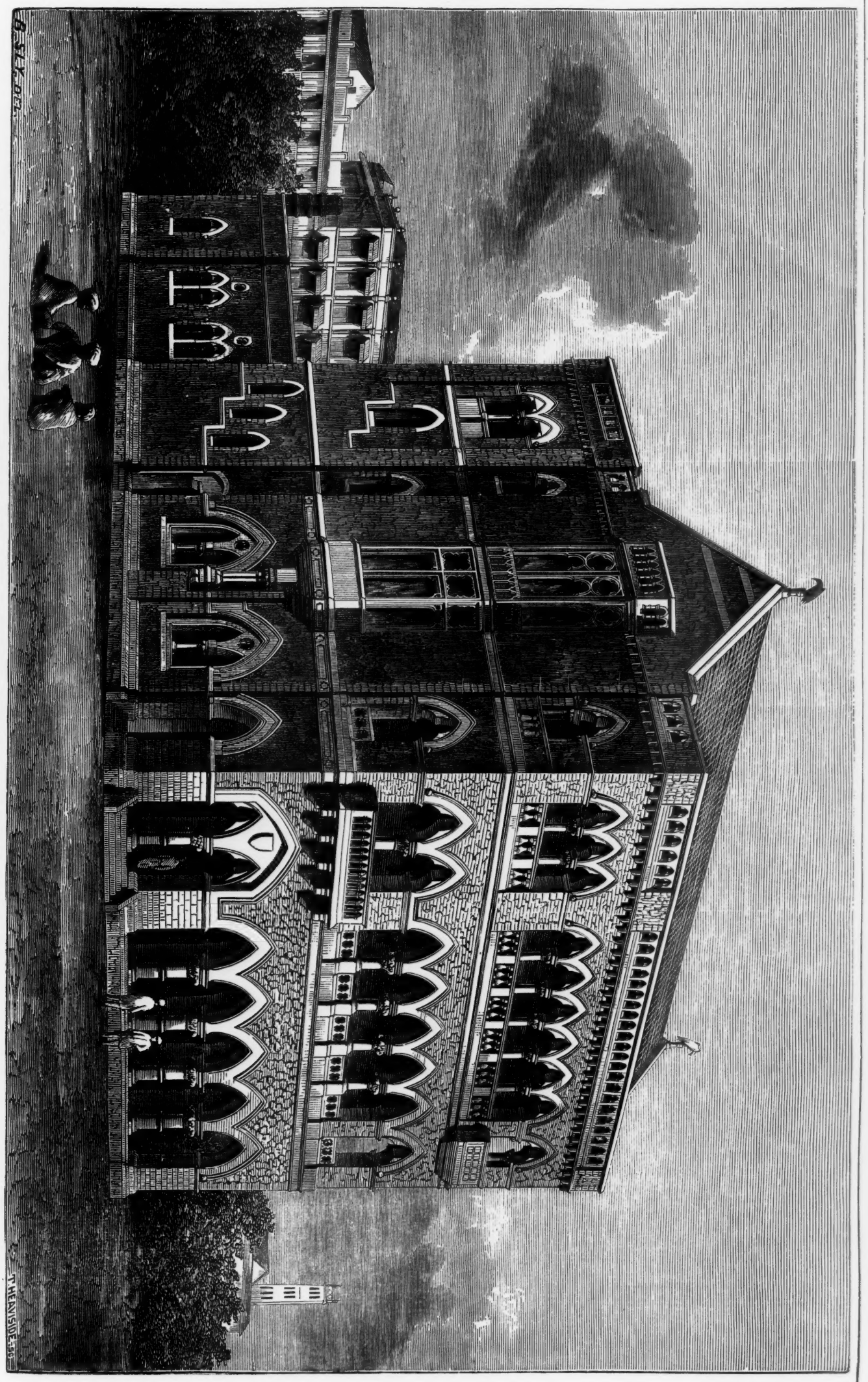
The building is constructed according to the plans of R. A. Gedike, professor of architecture. It is a cottage *ornée*, in the style of the most recent Parisian structures, having wide plate-glass windows and numerous statues. The forepart is fitted up for the exhibition of completed works of sculpture, destined for the ornamentation of halls, gardens, and terraces, and the external fittings of houses. As a specialist, Mr. Kozloff has devoted himself exclusively to the production of *genre* decorations, but in the figure or statuary department he works in association with the Academician Opekoushine and the clever A. Shwarg. Their productions consist chiefly of works in terra-cotta, Portland cement (white and grey), alabaster, and papier-mâché.

Within a short period Mr. Kozloff has succeeded in winning in Moscow the confidence which he enjoyed in the Palmyra of the North, viz., St. Petersburg, and at the present hour his works are to be seen on the mansions of many eminent persons. He has been also intrusted with the internal restoration of the Petrovsky Palace, and with the fittings of the halls and the grand staircase of the Nobility Club-house, as well as the façade and also with the great hall of the Cezarewitch Nicolas's Lyceum.

Roman Catholic School-Chapel, Bradford-cum-Beswick. — The new school-chapel, which has been built in connexion with St. Bridget's Roman Catholic Mission, Mill-street, Bradford-cum-Beswick, has been opened. Mr. John L. Ward, of Upper Brook-street, is the architect, and also the contractor for the work. The building is of brick. The ground-floor contains main room, 80 ft. by 20 ft., and four class-rooms, each 17 ft. by 14 ft. There is a spacious stone staircase at each end of the building, leading to the first-floor. This room, which is 80 ft. by 39 ft., will be used as a temporary chapel, and will accommodate 500 worshippers. The contract for the building was 2,000*l.*, exclusive of school or church furniture.

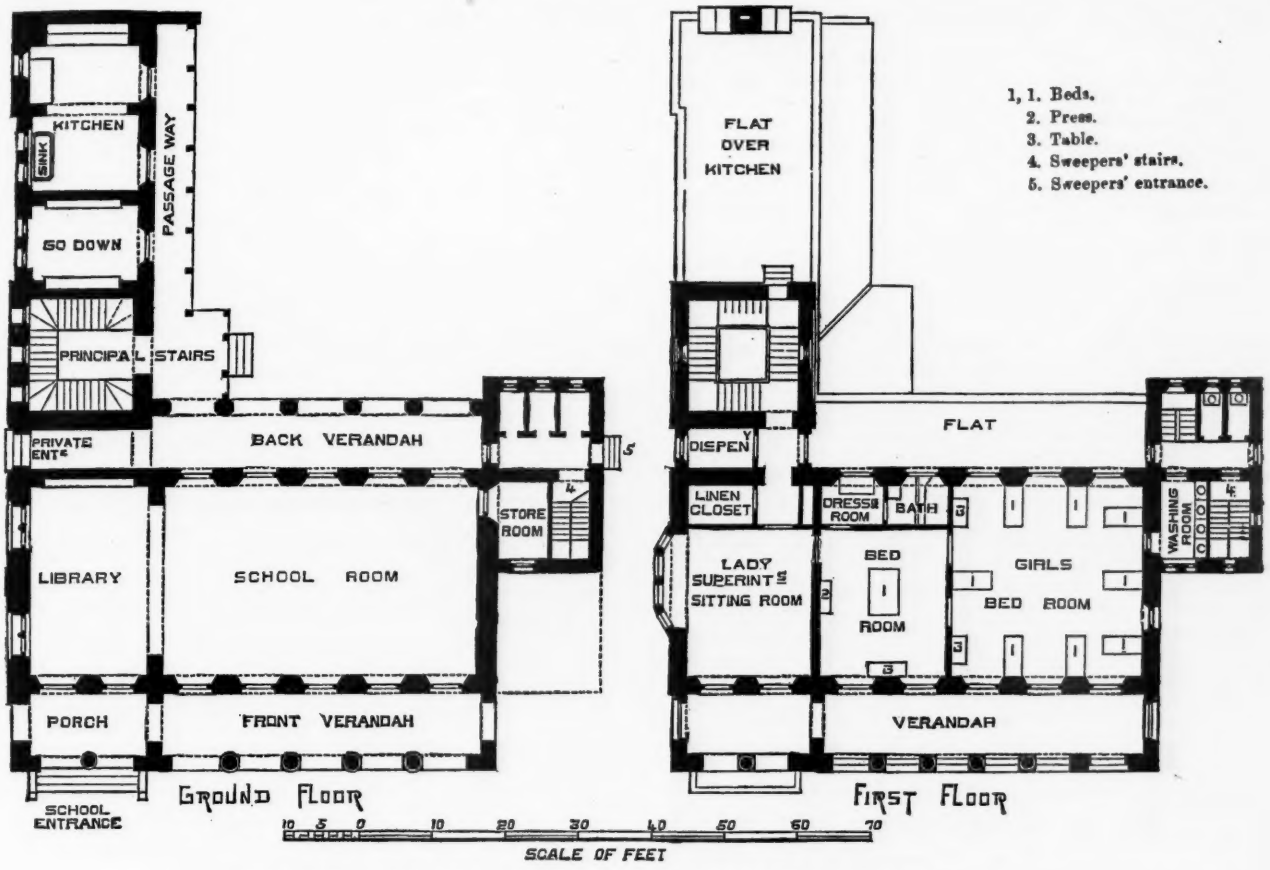


A RUSSIAN SCULPTOR'S STUDIO, MOSCOW.—PROFESSOR R. A. GEDIKE, ARCHITECT.



THE FRERE AND FLETCHER SCHOOLS FOR GIRLS, BOMBAY.

MR. GEORGE T. MOLLEGY, ARCHITECT. SUPERINTENDENT OF THE WORKS ON BEHALF OF THE GOVERNMENT, COL. JOHN D. FULLER.



THE FRERE AND FLETCHER SCHOOL FOR GIRLS, BOMBAY.——*Plans.*

FRERE AND FLETCHER SCHOOL FOR GIRLS, BOMBAY.

THE accompanying engraving represents the new home, and, permission being given, shows the new name of a school, heretofore known as Miss Prescott's, or the Fort Christian School,—the first and, as far as we know, the only one of its kind in India. It was begun some years ago by the late Rev. W. K. Fletcher, long a chaplain in the East-India Company's service, and well remembered for his active interest in the promotion of female education in the East before that subject was much thought of in England. The plan on which he started the school has been loyally carried out, and the result has proved, we are informed, so beneficial, that it is intended to render the school permanent, and, if possible, still more efficient. The basis is Church of England, all the trustees belonging of necessity to that body; but no children are excluded on account of their creed. It is a "mixed day-school,"—European and native sharing alike the secular instruction, whilst the religious is under the supervision of the cathedral chaplains. Non-Christian children join in the latter only with the permission of their parents; good faith being invariably kept.

The site on the esplanade is exceptionally good, and was given by the Government when Sir Bartle Frere was Governor of Bombay. Sir Bartle has never entirely lost sight of the Institution,—has befriended it on several occasions; and through his recommendation, the Society for Promoting Christian Knowledge have promised a grant of 500*l.* towards an Endowment Fund. The cost of the building is about 7,500*l.*, of which 5,000*l.* were the gift of a native gentleman, the remainder having been raised by public subscription, supplemented by the present Government of Bombay. Mr. George T. Molecey is the architect; and the superintendent of the works on behalf of the Government, Colonel John D. Fuller. The building is of stone, and the roof is covered with the Broomhall tiles. The school scheme as to admission of pupils, &c., was drawn up by the Advocate-General, and received the sanction of the High Court of Bombay, Government naming three lay trustees of official standing, the other two being the Archdeacon and Senior Chaplain. Under the same roof will be a boarding-school for European and Eurasian girls, especially orphans. Accommodation is provided for twenty-five boarders and two mistresses, besides a large school-room for general use; and the education contemplated is high-class,—the best possible attainable in the country.

It is now necessary to raise an "endowment fund" of at least 5,000*l.*, any contributions towards which will be thankfully received by the Lady Superintendent, Miss Mary Prescott, and may be paid to the credit of her account with the Chartered Mercantile Bank of India, Old Broad-street, London. The amount already received is about 900*l.*, including the sum promised conditionally by the Society for Promoting Christian Knowledge.

THE NEW METROPOLITAN MARKETS.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

AT the ordinary general meeting of this Institute, held on Monday evening last, Mr. J. Whichcord, vice-president, in the chair, the following new members were balloted for and duly elected, viz.:—As Fellows: Mr. T. Kesteven Hill, of Lancaster-place, and Mr. W. J. Green, of Delahay-street. As Associates: Mr. D. J. Ebbetts, of Kensington, and Mr. G. R. Julian, of Balham. As Honorary Associates: the Very Rev. the Dean of Westminster; the Right Hon. Gerard Noel, M.P.; Sir Charles A. Hartley, C.E.; the Rev. Benjamin Webb, M.A.; Mr. Joseph Sim Earle; Mr. G. Ridley; Mr. E. E. Antrobus, F.S.A.; Mr. Henry Holiday, and Mr. Herbert Jekyll, R.E.

The Chairman announced the decease of Sir William Stirling-Maxwell, an Honorary Fellow of the Institute, who was a careful writer upon pictorial art, especially that of Spain, and whose death would be a great loss to the Institute. He also announced the death of an Associate, Mr. Hartley William Burgess, who was his (the chairman's) close personal friend and valued assistant. (A notice of Mr. Burgess's death appeared in last week's *Builder*, p. 71, *ante*.)

Mr. Cockerell, Hon. Sec. for Foreign Correspondence, announced the death, on the last day of the old year, of Signor Giuseppe Mengoni, of Milan, Honorary and Corresponding Member, who died through injuries sustained by falling from a scaffold at the new arcade of Victor Emmanuel, Milan, which was being erected under his superintendence.

The secretary read a letter from the Leicestershire Society of Architects, inclosing a resolution expressing its appreciation of the efforts made by the Institute for the improvement of the status of the profession, especially as shown by the reforms of last session.

Mr. Charles Fowler called attention to the fact that the Metropolitan Board of Works intended to introduce a Bill into the present session of Parliament to amend the Metropolitan Building Act, and moved that the council be requested to obtain copies of the Bill, and, if they deemed it necessary, to appoint a special committee to consider the alterations proposed, with the view of making such suggestions or recommendations as the interests of the public and of the profession demanded.

Mr. Eastlake said that the first part of the resolution had been anticipated by the council, in accordance with whose instructions he had already applied for copies of the Bill, and in reply he had received a courteous answer from the Board to the effect that copies should be forwarded as soon as they were ready.

A member said he understood the Bill was already in print.

Mr. Hebb said that although the Bill was printed, it was still under the consideration of the Board, and was hardly in a fit condition to be made public at present; but he was quite sure that the Metropolitan Board would be only too glad to consult the Institute on the subject.

Mr. Fowler's resolution was then agreed to.

The discussion then took place on Mr. Horace Jones's paper on "The New Metropolitan Markets, an abstract of which appeared in the *Builder* a fortnight ago (p. 34, *ante*).

Mr. J. Douglass Mathews, in moving a vote of thanks to Mr. Horace Jones for his interesting and practical paper, said that the author had, without doubt, overcome in a very satisfactory way the difficulties he had to encounter. He had been especially successful in securing an equably-low temperature combined with efficient ventilation, for, notwithstanding the number of hours gas was burnt in the market, especially on winter mornings, the air was invariably good, and exceptionally sweet for a meat market. No better testimony could be borne to the suitability of the market than its success, owing to its being so readily taken-to by the meat trade, in spite of the disadvantages inevitably attending the dis-marketing of the old Newgate market, and the transference of its business to Smithfield. With regard to Billingsgate Market he could not say much, except that now it had

been re-built on so materially enlarged a scale, the question of approaches to it would have to be seriously considered. No market could be worse off, as regarded street approaches, than Billingsgate. In this connexion it appeared doubtful whether the corporation were doing the best thing in concentrating the meat, poultry, and fruit and vegetable markets, in the immediate neighbourhood of Smithfield. Though it was true that the approaches were better and the streets wider than in the case of Billingsgate, it should not be forgotten that the number of vans, carts, and trucks attending the three markets, and requiring temporary standing-room in the vicinity, was so great that it was likely to seriously interfere with the flow of traffic, notwithstanding the wide new streets which had been, or were to be, made. There was no doubt, however, that the site on which it was proposed to re-erect Farringdon Market was, in itself, far preferable to its existing site, although the great width of Farringdon-street was a most valuable point in connexion with the present structure.

Mr. Woodthorpe, as one who knew the difficulties which Mr. Jones had to overcome, and the various if not conflicting interests he had to study, congratulated him on his success, which was in every way worthy of the commendation of the Institute.

Mr. Rudkin, as representing the Corporation of London, and as identified with the meat trade, also expressed his perfect approval of all that had been said in commendation of the markets. In reference to the question of approaches, he agreed that those to Billingsgate were utterly inadequate. Some six years ago he had sought to induce the Court of Common Council not to rebuild or enlarge Billingsgate Market on its present site, but to build a large new fish-market in the neighbourhood of the New Meat Market, and in communication with the various railway systems whose lines converge, *viâ* the Metropolitan and London, Chatham, and Dover Railways, in that neighbourhood. He got a majority to favour his motion, which was afterwards, however, rescinded. Nevertheless, he believed that in twenty years hence his proposals in this respect would be adopted and carried into execution. Every year the proportion of fish brought by rail was increasing as against that brought by water, and if that increase continued, there would soon be no paramount reason why the market should necessarily be at the river-side. Fish could be landed at Grimsby, Hull, and other outlying ports in the evening, and sent direct by rail right into such a central market as he predicted would have to be erected, in time to be sold early the next morning. Lower Thames-street was already congested with the large amount of traffic incident on the fruit and Mincing-lane trades; and when to these was added the fish-trade, things were brought to a dead-lock. It was quite certain that one of these trades would have to seek fresh quarters, and for the reasons he had already given, he thought the fish-trade would be the better for removal. While, however, urging the desirability of concentrating the markets still further than at present proposed, it would never do to perpetuate or perpetrate such a condition of things as formerly existed in connexion with Newgate Market, or even such a state of things as existed in the vicinity of Billingsgate Market. Broad and well-formed streets of approach, conceived and carried out in a comprehensive spirit, were essential to the success of such markets as were necessary in London. As to the live-cattle trade, the Metropolitan Cattle Market at Islington had been under a cloud ever since the year 1866, in consequence of the outbreak of cattle plague, and he believed that the number of live beasts sent to market would diminish rather than increase, as it was now incontestably proved that the more nearly an animal could be slaughtered to the place where it was bred and fed, the better would be the quality of the meat and the heavier would the carcass weigh. Animals sent long distances in railway trucks, and driven, perhaps, considerable distances at either end of their journey, lost in weight very materially: they seemed to feed upon themselves, so to speak, and the money loss thus entailed averaged 35s. per animal. As to the Foreign Cattle Market at Deptford, he hoped that in the present session of Parliament the Corporation of London would get an Act making it compulsory that all foreign cattle imported into this country be landed at Deptford and there slaughtered, the carcasses being distributed thence by rail all over the country. In answer to a question by a member, Mr. Rudkin said that every accommodation was provided at the Metropolitan Meat Market for the reception of American meat. Finer meat than the great bulk of it it was impossible to obtain, and West-end residents partook of it, under the name of "Aberdeen," far more often than they were aware. In fact, it was impossible to tell the difference.

Mr. Ewan Christian said he regretted that no mention had been made of the name of the late Mr. Charles Pearson, the City solicitor, to whom was due the credit of originating the idea of the concentration of the London markets. He (Mr. Christian) remembered being present at a *conversazione* given by Mr. Pearson for the purpose of explaining his plans and models, and, while willing most heartily to accord all due credit to Mr. Horace Jones for the manner in which he had given practical effect to some of what were substantially Mr. Pearson's ideas, it seemed to have been forgotten in the paper, and by previous speakers, that that gentleman was really the precursor of much that had been done. The omission of all mention of his name was therefore hardly fair to his memory. If Londoners were enabled to get their meat, poultry, and vegetables with greater facility and cheapness, it was principally due to the persistency with which Mr. Pearson pursued the advocacy of his schemes.

Mr. Woodthorpe apologised for rising again, but he craved leave to say that a great deal of the credit claimed by Mr. Christian for Mr. Pearson was due to a well-known member of the architectural profession, viz., Mr. John Stevens, with whom he (Mr. Woodthorpe) was associated for some time, and therefore he had a full knowledge of the facts. The whole of the designs, drawings, models, sections, and every detail explanatory of Mr. Pearson's schemes, were carried out by Mr. Stevens, who was an exceedingly able man as well as a very talented draughtsman.

Mr. Charles Fowler said that as his father had been an architect concerned in the erection of a great many markets in the provinces and also in London (amongst them being the late Hungerford Market), he had taken great interest in the erection of the new metropolitan markets which their architect, Mr. Horace Jones, had described in his paper. The method and the details of construction adopted by Mr. Jones were far in advance of those adopted in the, as some considered, very elegant markets in Paris. The Halles Centrales embodied a great idea, but that idea started on a different basis to that underlying the necessities of the great London markets. As to material, he had always thought, and it was also the opinion of his father, that iron was a wrong material to be largely used in market construction. He also believed that the walls should be covered with wood or some other non-conducting material, and that there should be as little glass used as possible consistent with the amount of light and shelter required in the market. These conditions were especially necessary in a meat-market, where the temperature must be kept low, and he was therefore glad to see that they had been adhered to by Mr. Jones in the new markets. Although, perhaps, the Paris markets would strike the non-professional and non-technical observer as something grander and prettier than the London markets, the practical man would, on careful examination, admit that the new London markets were, in point of suitability for the purpose for which they were erected, greatly to be preferred to those of Paris. Of course, one great element of success in a market was suitability of position. It was owing to the non-observance of this condition that Hungerford Market failed. As to the exterior of the new markets, he thought Mr. Jones had succeeded in giving them a very good appearance architecturally, without sacrificing too much to outward show. Great height was quite unnecessary, but in the Halles Centrales economy was quite lost sight of in giving useless height to the façades. It was not to be forgotten that, as Mr. Jones had said, the new markets were not only metropolitan, but imperial or national, and as the business transacted within them was almost exclusively wholesale, their planning did not involve so many nice points of detail as would have been the case in exclusively retail markets, as to which a great deal had to be learnt by market constructors, many of whom seemed to imagine that a long covered avenue, not very wide, with stalls on either side, was all that was required. In the matter of the details of stalls in retail markets generally, and in all that appertained to the most advantageous display of the wares exposed for sale, our foreign neighbours seemed to excel us, and one consequence of this fuller attention to detail was that retail markets on the Continent presented a much more inviting appearance than did those in this country. In fact, we had hardly a single market in London which could be said to be inviting. In conclusion, Mr. Fowler added his testimony to the success with which Mr. Horace Jones had carried out the new markets.

The Chairman, in summing up the discussion, mentioned that the Corporation of Manchester had forwarded some interesting statistics as to the cost of market accommodation in that city, from which he had calculated that the cost per head to the community served by the markets was a fraction above 6*d*. It would be interesting to know what was the cost per head of the population of the metropolis of the markets erected and under the superintendence of Mr. Jones, who had thoroughly succeeded, at whatever cost, in securing, by his peculiar arrangement of roof construction, a temperature in his markets such as was utterly unknown in any other building of the kind. The notable schemes put forward by Mr. Pearson had been referred to, but the concentration of the markets was only a small portion of those schemes, as Mr. Pearson proposed the concentration of all the railway termini in the centre of the City,—a scheme which was abandoned as a whole owing to the difficulties in getting adequate street approaches. The vote of thanks was then put and carried by acclamation.

Mr. Horace Jones briefly replied, and in the course of his remarks he said that so many elements had to be taken into consideration that it was hardly possible to make a calculation as to the cost per head of the population served by the new markets, but he should say, roughly, that it was nearer 2*d*. than 6*d*. per head, as quoted for Manchester. As to Mr. Charles Pearson's claims to recognition in connexion with the concentration of the markets, all he could say was that however worthily conceived were his ideas, the carrying of some of them into execution in the shape of the Metropolitan Railway placed several difficulties in his (Mr. Jones's) way when he came to plan the markets.

Mr. F. C. Penrose, surveyor to the Dean and Chapter of St. Paul s, then read a brief communication respecting some recent improvements in paint materials, the invention of Mr. W. N. Wilkins. He said that these improvements were so important and valuable that the Dean and Chapter of St. Paul's had obtained the right to use the materials and processes, and had permitted him, at the particular request of the inventor, to bring them before the notice of the Institute. Their chief feature consisted in the abandonment of white lead and the substitution for it of kaolin or china-clay in combination with a small quantity of zinc-white. The inventor was also enabled to entirely dispense with driers by boiling a small quantity of Turkey umber with the oil to be used. Some works executed with his materials, and designated "oil-frescoes," were submitted to the meeting.

Mr. E. I'Anson then read a paper on "The Architecture of Norway," an abstract of which we give on another page.

Statue of the Prince Consort at Cambridge.—On Tuesday the Prince of Wales unveiled the marble statue of the late Prince Consort in the entrance-hall of the Fitzwilliam Museum, Cambridge. The Prince Consort was Chancellor of the University of Cambridge at his death, in 1861. The year after the subscription was started. More than 600 members of the University subscribed, and a sum but little short of 3,000*l*. has been raised. It was resolved that part of this sum should be appropriated to a statue; but there yet remains, through the careful husbanding of the Rev. Dr. Cartmell, the treasurer, nearly half the amount raised, which has yet to be appropriated to some object. The late Mr. J. H. Foley, R.A., was commissioned to execute a colossal monumental statue in marble of the Prince, and he commenced his work, which, from a variety of causes, was on hand a long time. In the earlier part of the time this was occasioned by the pressure of work; but, during the latter part, failure of health was the cause. Fortunately, before the death of the great artist, the statue was finished. The Prince is represented in his robes as Chancellor of the University.

THE ARCHITECTURE OF NORWAY.*

NORWAY is but sparsely endowed with any buildings of importance; it is, however, not destitute in this respect, and contains a few buildings of considerable interest. First, beyond all comparison, is the Cathedral of Throndhjem. This would be a fine building in any country. Throndhjem, the capital town of the district in which it stands, near the centre of Norway, contained, according to the census of 1855, 16,000 inhabitants; but a small portion of the cathedral, which was undergoing, when I was there (1872), extensive repairs and restoration, is at present in a fit state to be used. The service of the church is carried on in the south transept, and under the tower at the intersection of the nave and transepts. The whole portion westward of the central tower is in ruins, and, indeed, it seems doubtful if it were ever completed.

The cathedral, or, as it has been called, Christchurch (or the Trinity Church) of Throndhjem, was formerly the first, wealthiest, and most richly endowed church of the kingdom. The enshrined relics of the Norwegian martyr and saint, King Olaf Haraldsen, which were preserved here, attracted, during the Middle Ages, a number of pilgrims, who by their offerings greatly enriched this church. It has a length of 350 ft., is built in the form of a cross, at different periods, and consequently in different styles. The church was first erected about 1080, by the Norwegian king, Olaf Kyrre, in the Romanesque style (with round arches), and the architects were probably Anglo-Normans. The western part of it had a nave with two aisles, whilst the transept was without aisles, as well as the eastern part of the choir, which seems to have had a semicircular projection to the east of the high altar, and which stood exactly above the spot where King Olaf had been buried. The church remained unchanged, until Archbishop Eystein (1161-1188) added a chapter-house on the north side, which formed an independent building in the Gothic style (with pointed arches), and was by a gallery connected with the choir. His intention was to extend and rebuild the whole of the church, and he began with the choir; but at his death, in 1188, the work was far from being completed. After that the work advanced slowly, being frequently interrupted by civil wars; nor was it until 1247 that Archbishop Sigurd was able to lay the foundation of the western part, or "long house." The transept remained unchanged, and, with the exception of a few comparatively unimportant alterations and repairs, has been preserved as erected by Olaf Kyrre; the other parts are in the Gothic style of the thirteenth and fourteenth centuries. The "long house" consisted of a nave and two aisles, divided by two rows of columns, whilst the choir, which by the restoration also had received two narrow aisles, had five pillars on each side, to which must be added the four large pillars which carry the central tower, formerly terminating by a spire. From the choir protruded an octagon outbuilding, with a gallery and three side chapels, the easternmost of which was connected with the chapter-house. The nave, both in the "long house" and in the choir, was raised a story above the roofs of the aisles. The interior as well as the outside of the church was richly ornamented. There was a principal tower and spire, which stood in the centre of the building, whilst two lesser towers and spires rose one on each side of the western façade. Hardly half a century had elapsed since the rebuilding of the church, when it was destroyed by fire on the 3rd of April, 1328, and again it was struck by lightning and burnt in 1431. On both these occasions, however, means seem not to have been wanting to restore the building to its former state. But when, on the 3rd of May, 1531, it was again injured by fire, public feeling was greatly altered. The Reformation, which spread over so large a part of Europe, was adopted in 1537—the superstitious reverence for saints was gone: pilgrims no longer brought their gifts, and the church was stripped of its treasures, which were carried to Copenhagen. After that it was never restored to its former splendour, but remained in a very ruinous state during the greater part of the sixteenth century. In 1564, the Swedes, who had taken the town, removed the last silver nails out of the coffin of St. Olaf, and carried away the coffin itself to a church in Stirdalen, but from whence it was again brought to Throndhjem. After this, however, part of the church, viz., the choir and high choir were restored so as to serve as a parish church; but it was a restoration which hardly served to satisfy the most modest claims of the Protestant Church service. The fires by which the town of Throndhjem was destroyed in 1599, 1657, and 1681, spared the church, which was by degrees tolerably repaired; but in 1689 the central tower was thrown down by a storm, and in 1708 the whole church was again injured by a fire, as was also the town, and before the damage had been repaired, it was again, on the 25th of January, 1719, struck by lightning, and suffered again by fire. Since that time it has no more been exposed to such disaster, and although but the eastern part of the cathedral remains in its restored condition, it must still be looked upon as the finest monument of Middle-Age architecture in Norway. The roof covering the projection of the high choir dates from the last century, before that period it boasted a pointed spire. The above description is taken from a Norwegian work of some authority, but as it does not read very clearly, I refer to a briefer notice, as given in Fergusson's "Hand-book." The transept he describes as having been built by Archbishop Eystein, between 1160 and 1183; all that stands eastward of the transept was rebuilt in the sixtieth or seventieth year succeeding 1183. In 1248 the nave was commenced, and after the fire of 1328 the circular choir was built. Its length was 346 ft. or 350 ft.; its breadth 84 ft., except at the west end, where it was 140 ft. inside. The western front was originally flanked by two towers, and is now composed of two arcades of pointed and foliated arches of excellent Early English character, but it leans so much out of the perpendicular that it is buttressed up by very unsightly and large piers, which have been built without any reference to the architecture. All the slender pillars from which the arches spring are gone, both in the upper and lower arcades. Towards the north end in the upper arcade are the remains of four figures, and towards the middle, one which is nearly perfect. In Laing's "Norway," he says, "There are twenty niches in this front, which were originally filled with figures. From the folds of the dresses, hands, and hair of the heads, they could not have been the work of the same age or country which produced the grotesque masks and figures which are shown with profusion over the most ancient parts of the building. They are of a different taste or school from those figures in the Cathedral of Amiens and other churches of the same period; they display considerable merit, and deserve an examination by a competent judge."

The next church of importance is the Church of Stavauger. This, like the cathedral at Throndhjem, is built of stone, but no part of it is a ruin; it is a fine Norman church, with the chancel of the Decorated period. There is a fine porch on the north side, and the interior is fitted up with some sixteenth or seventeenth century wooden screen-work of good character. It has been recently restored, and is in perfect condition. The east end is square.

At Christiania is a church described in Murray's Handbook as the oldest church in the town, the Church of the Gamle Akers, and as having been restored in 1860; but I found that this restoration consisted, in fact, of an entire rebuilding; whether it faithfully reproduces the old building I am unable to determine; it is a good specimen, however, of a plain Norman church.

The only other stone churches which I saw were a large Norman Cathedral at Stor Hamor, on the Möosen Lake, not far from Christiania; of which, however, all that remains is an arcade, four arches, and three massive columns. This cathedral was burnt and plundered by the Swedes in 1567, but it remained until the seventeenth century, when it went to ruins. At the same place there were three other churches, and vestiges of at least one of which still remain, and are incorporated in a modern church which is visible from the lake.

In other parts of Norway which I passed through, I noticed some, and probably there are many other churches of Norman character, which are built in stone, but except one I noticed at Vossevanger, near Bergen, and a castellated building of some extent at Bergen, there are no important mediæval buildings which came under my observation. There are, however, other buildings, churches of small dimensions, but of considerable interest and exceptional character, well worthy of notice. I refer to some remarkable wooden churches, of which the two best known are those of Hitterdal and of Borgund; there is at least one more at Urnes, as there is an illustration of it given in Weale's Quarterly Papers, and there may be others still extant. That which I saw was the church of Borgund, but having seen drawings of the church of Urnes, and numerous photographs of Hitterdal, I am enabled to say that they are all very similar in character. They are, as stated, built of wood, as indeed very many of the more modern country churches still are; that at Borgund has a covered gallery all round, the object of which is by no means apparent, unless it be to protect the walls by the roofing which shelters them; the centre part of the building is raised higher than the aisles, so as to procure a clearstory, so that there are three roofs surmounting the building, the lower roof being that to the external gallery; the second roof being that over the aisles, and the third and upper roof is that which covers the nave and clearstory, and above that on the ridge of the upper roof to a square turret, but whether ever used as a bell-turret is uncertain, as near the church is a distinct and separate belfry. The building being nearly square, the roofs, before described, rise one above another at a steep pitch, and thus assume a pyramidal form. Where there are gables to doors or windows, as also to the main roofs, the ridge which covers them is at its end curved up and finished with a recurved perforated wooden finial, the whole strongly resembling the roof of the Kew pagoda, the whole decidedly Chinese or Asiatic in appearance. The exterior is covered with wooden shingle, placed lozenge-wise, or with plain wood slabs, and the roofs are covered with rough lozenge-shaped wooden shingle, so that the appearance is rough and mean; its picturesqueness and its very distinctive type of character, however, quite redeem it from insignificance. The interior of Borgund Church is as rude as the exterior, the nave columns are simple pine posts, with neither capitals nor bases, and except a rude and simple notching of some of the timbers supporting the interior walls of the clearstory, there is no attempt at decoration to be seen. Externally, the surrounding gallery has a well-proportioned arcade and turned columns, with caps and bases. The chief decoration in the church is to the south door; this has small attached columns on each side of the door-opening, and surrounding it a broad band as an architrave, which is richly sculptured with ornaments of a very marked Byzantine character. This church is one of the two oldest buildings in Norway: it seems to have been built in the eleventh or twelfth century, for the arches and the apse are semicircular, and it has all the character of the style of a small German Romanesque church, so far as it can be imitated in wood. It is built of Norwegian pine, and protected from the weather by a thick coating of pitch. The nave measures about 13 ft. 9 in. by 11 ft. 9 in., the aisles a little over 3 ft. wide, from out to out, the body of the church is about 28 ft. by 32 ft., and the length, including the apse, but not including the porch, is 59 ft., a low covered way, about 3 ft. wide, runs round the exterior body of the church. The belfry is of much more recent date, and stands some distance apart. A church like this (according to Laing's "Norway") existed at Leir del Sören; it was sold to the King of Prussia, and is now erected in Silesia.

The wooden church at Hitterdal has similar architraves as those to the door of Borgund Church, so also, from the drawings I have seen, has the church at Urnes; and in the Museum of Copenhagen I saw fragments of the architraves of the doors of other Norwegian churches all similar in character. The ornament on these architraves represent animals somewhat resembling lizards, or the ideal dragon, intertwining and biting each other, with an intertwining foliage decoration running through and combining the whole. Mr. Fergusson, in his Handbook, characterises this decoration as Runic, and I have somewhere seen, although I cannot now call to mind where, drawings of crosses either in Scotland or Ireland, ornamented in a similar manner, also described as Runic, which I consider are simply Byzantine. The stones carved with Runic characters have no sort of affinity with the Byzantine character of the wood carving I have referred to. Fergusson says there can be no doubt about the age of these

* From a paper read before the Royal Institute of British Architects on Monday evening last by Mr. E. P. Anson, F.G.S., fellow.

curious churches; for he adds, not only does the dragon tracery fix them as of the eleventh or twelfth century, but the capitals of the pillars and the general character of the buildings exactly correspond with the details of our own Norman architecture so far as the different materials admit. With the latter part of this I cannot say I fully concur; for, although in our own and Continental Norman there are decided traces of this dragon tracery, as Mr. Fergusson calls it, still it is very far indeed from being so fully developed as in these small Norwegian churches. In some parts of the decorations of St. Mark's, ornaments much more similar can be found. On the door of the cathedral at Salerno there is some very similar ornament; and only quite lately I observed some carved ornamentation almost identical in character on a door of one of the Romanesque churches at Cologne. It strikes me, however, as remarkable, that in the same small country of Norway, towards the latter end of the twelfth century, the distinctly Norman portions of the cathedral at Throndjhem were being built; and here the style of ornament was pure Norman of the style commonly called Saxon, and of which scarcely a trace occurs in the Byzantine carving used in these small churches.

Hitterdal is the next church to which I refer, and which I know only by photographs, description, and engravings. It is also one of the oldest in Norway, and of the same period and style as that of Borgund. Fergusson says, referring to these wooden churches:—"The largest of these is Hitterdal; it is 84 ft. long by 57 ft. across; its plan is that usual in churches of the age, except that it has a gallery all round on the outside; its external appearance is very remarkable, it is more like a Chinese Pagoda, or some strange creation of the South Sea Islander, than the sober production of the same people who built the bold and massive round Gothic edifices of the same age." Mr. Fergusson suggests that the panels may once have been adorned by Runic carving, which, as they decayed, have been replaced by plain timbers, detracting much, of course, from the original appearance. Near this church is a belfry, as at Borgund, almost of the same form, and both considerably more modern than the churches near to which they are placed.

Besides the wooden churches, there are in the Telemarken district many wooden houses or stores, of small size, the ornaments of which are very similar in character to the Byzantine decoration round the church doors, intermixed, however, with rude Renaissance work, and of them I exhibit some illustrations. Nearly all the houses in the country districts at least are built of wood, and from being cased externally with rough slabs, nothing can well be less sightly in appearance. What is very remarkable is the roof-covering, almost universally the bark of the birch, which is laid on at a comparatively flat pitch, and which has a wonderful power of resisting the dampness of the atmosphere; and that this covering must be of considerable duration is evidenced, because not only are the roofs covered with vegetation, but sometimes upon them small trees are actually growing, and they are so flat, and the houses are so very low and near the ground, that the goats easily get on to the roofs, where they apparently find good pasture-ground.

It is only in the larger towns, such as Christiania and Bergen, that the houses are built of stone; they are chiefly modern, few, if any, being older than the seventh century. I produce one or two sketches of houses of this character at Christiania. In the Museum at Copenhagen there is a remarkable collection of objects of the prehistoric age, a vast collection of flint implements, also of bronze and gold, which were not superseded by the use of iron and silver until the third century of our era. In examining the ornamentation on many of the objects of the bronze age, I was much struck with the resemblance of some of the ornamentation to the Byzantine and Greek. On several of the bronze vases the form of the guilloche, with various modifications, is the common ornament. And it occurred to me that these convoluted and interlaced lines, combined with the lizard or dragon form of Byzantine ornament, is the origin of that certainly distinct type of the decoration in the wooden churches of Norway, called Runic. On the staircase of the same museum are several sculptured wooden doorways from Norwegian churches, and there is one from a church in Iceland, the decoration on which is pure Byzantine in character.

WAGES AND RESULTS.

LAST Monday evening, the 21st inst., Mr. Thomas Brassey, M.P., read a paper "On the Comparative Efficiency of English and Foreign Labour," at Hawkstone Hall, Westminster Bridge-road. The Rev. Newman Hall was in the chair, and there was a large attendance. Towards the close of his discourse Mr. Brassey said:—At Cincinnati, in Ohio, in 1872, the rate paid to the common labourer was one dollar 50 cents. (equal to 6s.) per day. The present rate is one dollar a day. This gives a reduction of 33⅓ per cent. The reduction in the wages of mechanics has been about equal to that in the wages for unskilled labour. Turning to the cost of living, the reduction has been fully proportionate to the difference in wages. Since 1872, coal has fallen 50 per cent., rent 35 per cent., clothing 50 per cent., house-furnishing goods have declined in value fully 40 per cent., furniture 35 per cent., glass-ware 35 per cent., cutlery 25 per cent., and crockery 20 per cent. Table expenses having remained the same, the reduction in the cost of living in the last five years is not less than 30 per cent. Hence, with wages reduced only about 35 per cent., the working men who are fully employed are not severe sufferers.

The leaders of our trade unions, who too often commit themselves, in unprosperous times, to a stubborn resistance to a reduction of wages, may study these figures with much advantage. They will see that the maintenance of high rates of wages all round is not an unmixed benefit to the people at home, while it must certainly affect prejudicially our power of competition abroad. A general advance of wages means a general rise of prices; and it is obvious that if that advance of prices be such that the increase in the cost of living up to a given standard absorbs the increase in wages, the rise of wages has conferred no practical benefit on the workmen. Conversely, the fall in wages may be fully compensated, as in America, by a proportionate reduction in the cost of living.

Mr. Archibald, our Consul-General in New York, gives some tables which show the fall which has taken place in wages in every State of the American Union:—

"The per-centage of reduction of railroad wages from 1873 to 1877 on seven different lines was as follows:—

	Per centage of Reduction.							Average.
Conductors	20	46	18½	...	22	28	8	24
Brakemen.	19	38	23	14½	20	26	...	23
Firemen ...	9½	25	12	...	41	31	9½	21
Switchmen	23	23½	34½	19	33½	26	12	23
Trackmen.	43	40	33⅓	33⅓	44	30	...	37

The per-centage of reduction for other classes of labour is shown in the following statements:—

BUILDING TRADES.

	Daily Wages.		Per cent. of Decrease.
	1873. d. c.	1877. d. c.	
Masons	4 00	2 50	37½
Masons' labourers.	2 50	1 50	40
Plasterers	5 00	2 50	50
Carpenters	3 50	2 50	28½
Common labourers	1d. 75c. to 2d. 00c.	1 25	28½ to 37½

CONTRACTORS' MEN.

	1873.		1877.		Per cent of Decrease
	D. C.	D. C.	D. C.	D. C.	
Stonemasons on railroad work...	3 00 to	3 50	1 50 to	2 00	50 & 43
Stone-cutters.....	4 50	5 00	...	2 50	44 50
Carpenters on railroad work...	2 50	3 00	...	1 25	50 59
Blacksmiths (exceptionally skilful).....	...	4 50	...	2 50	... 44
Blacksmiths (ordinary)	...	3 00	...	1 50	... 50
Blacksmiths' helpers.....	...	2 00	...	1 00	... 50
Tracklayers	...	2 00	1 12	1 25	44 37½
Engineers, steam shovel (per month).....	118 00	125 00	...	60 00	48 52
Firemen, steam shovel (per day)	...	2 50	...	1 50	... 40

SUMMARY.

Railroad wages.—The average per centage of reduction varied from 21 per cent. for firemen, to 37 per cent. for trackmen.

Building trade wages.—The average per centage of decrease varied from 28½ per cent. to 50 per cent.

For other classes of labour as specified—

The average reduction was nearly twice as great as the average railroad reductions.

In the oil refineries and yards about New York, where a great many men of different trades are employed, including coopers, ship-carpenters, house-carpenters and machinists, the reductions of wages since 1873 have been about 25 per cent.

These figures should convey a most instructive lesson to our working people. I have on many occasions shown that the cost of production cannot be determined by the nominal rate of daily wages, and I have never been alarmed for the future of the industry of the United Kingdom simply because wages on the Continent of Europe were so much lower than in this country. I have been much more impressed with the capabilities of the manufacturers of the United States. In America labour has, until a recent period, commanded the highest rates of wages. The scarcity and the cost of labour have stimulated to the utmost the ingenuity of our intelligent and enterprising kinsmen across the Atlantic, who have all the qualities of the Anglo-Saxon race and a boundless field for their development. Labour-saving machinery and mechanical skill generally have thus been brought to great perfection. With high wages, and all the obstacles to trade which an extreme protectionist system presented, the cost of many articles has been brought down to a level which has enabled American manufacturers to compete successfully with our producers. I will give a striking case as an illustration. It might have been supposed that the rifles required for the Turkish armies would have been made by the comparatively cheap labour of Liége or Birmingham. That, however, has not been the case. A contract for rifles, amounting to $17,000,000, the largest single contract ever taken in America from a foreign nation, was given to the Providence Tool Company by the Turkish Government. The Tool Company were three years in preparing to begin the work upon the contract, and now employ 2,500 men, who turn out 200,000 Martini-Henry rifles per year, or 600 finished rifles in a day. "One of the side businesses of magnitude,"—to quote from the "Polytechnic Review,"—"which have grown principally out of this contract is that of the Excelsior Box Company of Providence, which is busy making 10,000 boxes per year for the Tool Company, in which to ship their guns to Turkey. The machinery for the manufacture of these boxes was perfected by an invention for the purpose. The company have still two years in which to complete the number of these boxes that they contracted to make, by which time, also, the Tool Company will have completed their immense contract with the Turkish Government."

The mechanical industry of the United States has been developed with equal success in other branches. The locomotive manufacturers of Pennsylvania have supplied engines to all the railways of South America, and I believe to our own Australian colonies also. It would seem at first sight incredible that our engine-builders should have been beaten in a neutral market with no hostile tariff. Anyhow, it would have been expected that if we were beaten it would have been by the Belgians or the German makers, who command an ample supply of labour at comparatively low rates. The contrary, however, has happened; and it is a country where labour is paid at rates unknown in the Old World which has usurped our place. We have been conquered by the mechanical skill of the employer in devising labour-saving machinery, and by the industry and energy of the workmen, who, if they have earned high wages, have worked longer and more industriously than many among our own mechanics have been disposed to do. I am not afraid of high wages, but I have a fear lest the foundation of our industrial prosperity should be undermined by restraints on the characteristic energy of our people. If our workmen allow themselves to be deluded with the notion that by working at half-speed they will prevent over-production, British industry cannot contend successfully against the free and vigorous efforts of our kinsmen in America. The only result of such

a suicidal course must be that the people who impose no artificial restrictions on their powers will take our place in every open market.

In conclusion, may I say that I offer in no narrow and selfish spirit, these suggestions to the consideration of my fellow-countrymen, whose lot it is to labour and to earn their bread by the sweat of their brow? I contemplate, with more equanimity than some students, perhaps, of economical science, the increasing participation of other nations in trades which once seemed destined to be the monopoly of the United Kingdom. Would it be a thing to be desired that our island should become the universal workshop of mankind? Would it add to the felicity of its inhabitants that the population of this huge metropolis should be doubled in number? Would you wish to see all Lancashire and Yorkshire honeycombed with coal-pits, every hill crowned with a monster manufactory, and the black country of Wolverhampton enlarged to twice its present limits? Is it not better that we should share with other nations in the development of those industries which, however admirable they may be as illustrations of the skill and energy of man, inevitably involve the destruction of much that is fair and lovely in nature? A life without trees and flowers, and blossoms, which no breeze from the hills or the sea ever refreshes, is a life imperfect, and wanting in the purest and the best pleasures which it is given to man to enjoy.

> "I heard a thousand blended notes,
> While in a grove I sat reclined,
> In that sweet mood when pleasant thoughts
> Bring sad thoughts to the mind.
>
> To her fair works did nature link
> The human soul that through me ran;
> And much it grieved my heart to think
> What man has made of man."

Let us, then, abandon the vain idea that it is an irreparable misfortune for our country to share with others in the development of the commerce of the world. Let us study the situation in a spirit of generosity to the foreigner and of justice to our own people. Montesquieu has well said: 'L'esprit de commerce produit dans les hommes un certain sentiment de justice exacte, opposé d'un côté au brigandage et de l'autre à ces vertus morales qui font qu'on ne discute pas toujours ses intérêts avec rigidité, et qu'on peut les négliger pour ceux des autres. Le commerce rend les hommes plus sociables, ou, si l'on veut, moins farouches, plus industrieux, plus actifs; mais il les rend en même temps moins courageux, plus rigides sur le droit parfait, moins sensibles aux sentiments de générosité."

It may be that the young men and women of the present and of coming generations may be required to go forth in augmented numbers to earn their livelihood in other lands. Such a contingency may be contemplated without regret, if our sons and daughters carry with them an affectionate memory of the mother country. In the Antipodes, or the New World, under the Union Jack, or it may be beneath the Stars and Stripes of the American Union, I see before me a glorious vision of the growth of the Anglo-Saxon race. I see new nations rising up, speaking our language, and educated in our literature, bound to us and to one another by the closest ties; and I see, in this wider distribution of our race, more individual happiness, and a surer basis for our greatness as a nation, than in the concentration of a redundant population within the narrow limits of their ancestral island home.

CONJOINT SEWAGE FARMS.

AN agreement has been entered into between the Merthyr and Aberdare Local Boards of Health with reference to the disposal of sewage. As this is, we believe, the first agreement of the kind extant, founded on the 28th section of "The Public Health Act, 1875," it is interesting. The Merthyr Sewage Farms are situate in the valley of the River Taff, near the confluence of the Aberdare Valley with the Taff Valley, and about eight miles from Aberdare. These farms have been acquired by the Merthyr Board under powers granted by Parliament in 1870, and it has been found that the land is so suitable for absorbing and purifying sewage, that at least double the quantity that was originally intended may be disposed of and cleansed by it. Hence the agreement to take upon the land, originally intended for the sewage of Merthyr only, the sewage of Aberdare also. Mr. Samuel Harpur is the Merthyr Tydfil Engineer.

THE EDUCATIONAL TRAINING NECESSARY FOR THE DEVELOPMENT OF TECHNICAL SKILL.

SIR,—A fortuitous concourse of circumstances is generally the cause of national pre-eminence. Such circumstances make that demand upon the energies of a people which leads to prosperity. A favoured people, by force of circumstances, is compelled to be aggressive, and this aggressiveness in its turn becomes a stimulus to endeavour to the outer nations; foreign activities are evoked, and the favoured nation has to stand upon the defensive. The time comes when national pre-eminence can only be maintained by intellectual supremacy, for intellectual power is the most potent arm in a nation's armoury. If that weapon be not of the best kind, the finest arm of precision,—her untold gold, her vast material resources, her ironclads, her fine troops, her monster guns, and her rifles,—will avail her little, for she will be unable to wield them. In times of prosperity, therefore, a nation ought to be solicitous about her system of national education, and use her utmost endeavours to establish it on the soundest principles.

Englishmen, as a rule, fully recognise the great importance of national education, and great pains have been bestowed, and are still being bestowed, upon its elaboration. It would appear to me, however, that we have erred in accepting an antiquated system upon trust, and without sufficiently scrutinising it to discover whether it be based upon sound principles. The leading notion of our teachers would seem to be that a man's intellect is in proportion to the number of subjects which he has "got up," and that the more extended the curriculum of study the *higher* the education. On this monstrous fallacy of *quantity*, education is proceeding to the injury of the individual, intellectually and physically, and to the detriment of the nation. No more pernicious scheme could possibly be devised than this so-called "*higher*" education for lowering the intellectual and physical status of a people.* Educators have failed to discriminate and to separate knowledge, or the material for thought, from the instrument of thought and the power of thinking. Knowledge is of many various kinds, but the instrument of thought and the mode of thinking rightly are one and the same, or an adjustment of the same, no matter to what subject they may be applied. We have, therefore, to study the mind as a mechanism if we desire to utilise the intellectual powers of men to the uttermost, to make them thinking and reasonable beings; and, above all things, we should studiously endeavour to protect the mental powers from being overloaded and clogged.

It is with the vital mechanism, in its totality, as with machines made by human hands,—it will not work well, and the work which it turns out will be ill done, if it be imperfect and disproportioned in its adjustments; it will not properly perform its functions, mental or physical, if it be overladen; its power may either be concentrated or diffused; the amount of work which it does will be an equivalent of a certain force expended; and the force expended in one direction will diminish by that amount the force left available for use in another. We gather, then, both from the working of mechanical inventions and from our experience of the vital dynamics, that neither machines nor human beings can have their powers overtaxed, nor their power too much distributed, if we desire to get the most favourable results from them,—if we desire to have their full force brought to effect some special end. The educator has therefore to keep these principles of the human mechanism steadfastly in view in framing a system of national education.

Let us then first of all get a clear conception of the essential faculties of this human mechanism which it should be our first and main object to develop, to perfect, to bring into just proportion. These are,—1, the senses; 2, the memory; 3, the reason; 4, the physique. The senses, because for the sake of the accuracy of the understanding we should be able to observe correctly; the memory, because we should be able to fixedly retain what we have learnt and understood; and the reason, to enable us to attain to just views, and to systematise our knowledge. What subject is there that a man could not grapple with, within the limits of the human powers,—whose faculties of observation, memory, and reason were perfect? Or what feat of technical skill could a man not perform who, in addition to these perfections, possessed a well-proportioned or well-trained and healthy physique? I will not here dilate to the full on the best means of developing those several important elements of the human system, the senses, the memory, the reason, and the physique; but I shall endeavour to impress the reader with the importance of training the senses of sight, of hearing, and of touch, because I consider that the judicious training of these senses is indispensable to the production of good workmanship, from the making of a simple box to the carving of a fine statue. And upon this point, the training of the senses, I laid great stress in my pamphlet of 1851. The importance of this kind of training becomes the more evident when we reflect that it is from the impressions received through the eye and the ear that men are enabled to bear witness to what passes in the external world, and teachers of drawing and of music only fully know what false witnesses, without *mal-prepense*, these senses are before they have been properly trained. Let it not be forgotten either that it is upon the testimony of these two senses that character and life are frequently at stake. The desire to obey the command, "Thou shalt not bear false witness," may be strengthened; but evidence, nevertheless, cannot be guaranteed upon oath. For if a witness be an imperfect observer, either by the eye, or by the ear, as he commonly is, in default of not having received that sense-training upon which we are insisting, he may quite conscientiously swear that his imperfect perceptions are absolutely true. There is an art-teacher who points this moral in his class. If, says he, you misapprehend the relation with respect to the model immediately before you, and biding your own time and convenience for deliberate inspection, how can you exect to accurately observe, and to recollect the moving scenes and occurrences of every-day life? It is not only in the witness-box, however, that trained senses are required, but for the recognition and appreciation of beauty in nature, to preside watchfully over all kinds of work, and to endow the arts and the manufactures of a nation with those excellent qualities which would satisfy a discriminating demand. I am now, of course, more immediately referring to the sense of sight. You will find that painters and sculptors can, more readily than other men, turn their hands to any kind of work, and why? Not solely because the exercise of their professions requires the greatest nicety of touch, but because their sense of sight having been better trained, they see more correctly than other persons. Drawing and instrumental music respectively tend to perfect the senses of sight and of touch, and of hearing and of touch. They are to these senses what gymnastics are to the general physique.

If I somewhat enlarge on the foregoing observations in reference to the subject of drawing as the gymnastics of the sense of sight, it is because what is said of drawing as a means of training men to observe correctly, and to be dexterous-handed, may easily be applied to music as a means of training the senses of hearing and of touch. The plastic arts are in their highest manifestation the result of fine thought and fine feeling working with consummate technical skill. This technical part of art requires the development of those very faculties to perfection which are necessary to effect all kinds of handicraft, viz., correctness of eye and dexterity of hand. The mechanical part of art is the very highest kind of handicraft. Hence the importance of drawing in a system of formative training for the workman, or, indeed, for any man. But this kind of training, to have its full effect, should be commenced when the human being is most impressible and plastic to the moulder's hands. *Our School-Board Schools should be so constituted that they should be the great nurseries of technical skill.* Habituated as Englishmen have been to a certain set educational procedure, the views herein set forth may appear too theoretical, but since I first propounded them I have ascertained that, if theoretical, they were also once considered practical, and that the system of educational training now proposed was that adopted by the

* Since writing the above my views have received strong confirmation from the expressions of Dr. B. W. Richardson, in a lecture delivered at the London Institution,—"Young men and young women who are now presenting themselves for the higher class examinations are crushed by the insanity of the effort." "The system was doing sufficient evil to men, but what could happen to the world if women, anxious to emulate, were to have their way, and, like moths, follow their mates into the midnight candle of learning?"

nation which attained to the highest position in art, literature, and techtonics,—need I say, by Greece? There is evidence that from the fourth century B.C. onwards, drawing was ordinarily taught, and that every Greek boy either had, or was supposed to have, a musical ear. He was accordingly taught either the harp or the flute, and with it singing. There were also the finer gymnastics: the fine art of rhythmic movement, by which they sought to give grace of action and dignity of carriage. The Greek was, therefore, in every way attuned by art; in art he moved and had his being. And this symmetrical training, by a reflex action, was not without its marked beneficial effect on all kinds of workmanship.

The formative course of training which I have here but partially and rapidly sketched I have treated more fully in my little book, entitled, "Symmetrical Education." I myself believe that some such formative course should constitute the basis of our educational system; other branches of education might then be safely left to take care of themselves; professional, special or technical education, the knowledge of science and of languages should be a secondary consideration,—a course quite apart from the *formative*. The choice of subjects being left to the individual, and to be purchased by the individual, the schools or colleges established for these purposes should be the work of private enterprise; the professions should provide for their own technical instruction, and I think the masters and the workmen ought to be able to provide for any necessary technical instruction which the workshop itself failed to supply. The Central Technological College which I projected in 1851 was designed to bring together the greatest teachers in the world upon special subjects, and thus to make England the great educational as well as commercial centre of the world.

W. CAVE THOMAS.

THE MODEL BYE-LAWS.

LIVERPOOL ARCHITECTURAL SOCIETY.

AT the fifth meeting of this society, held on the 9th inst., the president, Mr. J. M. Hay, in the chair,

Mr. F. W. Hornblower, hon. sec., proposed that, as the question of professional charges in Liverpool, more especially with regard to valuations, was a very vexed one, a committee should be appointed to consider the question, but this was ultimately referred to the council, who were empowered to add to their number any Fellow of the society outside that body whose opinion they might consider it desirable to have.

Mr. Joseph Boult, Fellow, read a correspondence he had had with the town clerk at Chester (as being secretary of the council committee on the Model Bye-laws), together with a copy of a letter received by the town clerk from the Local Government Board, explaining that it was not the intention of that body to alter the bye-laws in any way, and proposed that "The council be requested to co-operate with the council of the city of Chester, and other public bodies and associations, with a view to obtaining a thorough investigation of the building usages throughout the country, and the enactment of a uniform system of regulations." In the course of his remarks, Mr. Boult said that within a radius of twenty miles round Liverpool there were nearly forty Local Boards or Urban Authorities, each of which had its own special building regulations. In his opinion, there should be in every large centre a court of experts, composed of architects, engineers, and practical builders, to whom all cases in dispute in matters connected with building should be referred; the responsible officer of every Local Board should be made to pass a proper examination, similar to that now passed by the London District Surveyors. This would in itself be equivalent to a diploma, and until this was the case, and the building laws had been thoroughly legislated upon, nothing satisfactory would be arrived at.

Mr. Hay, the president, thought Mr. Boult's motion a very good one. At the present time cases were often arising in which the *spirit* of the law was certainly not violated. The local surveyors, though they could perfectly well see the absurdity of such cases, were allowed no discretionary power. He himself was on one occasion prosecuted for a cause so utterly absurd that the presiding magistrate declared that unless he received a *mandamus* from the Court of Queen's Bench ordering him to sign it he would not do so. Contingencies were constantly arising which none but a Court of Appeal composed of experts could decide.

Mr. T. Mellard Reade, C.E., considered that so large and novel a scheme as that propounded by Mr. Boult would require much consideration, and indeed seemed at first sight impracticable. He wished to explain that his reason for opposing the Council's report on the Model Bye-laws was principally because he was of opinion that the question had been gone into too hurriedly. There was much that required revision in the bye-laws, more especially those relating to sewage matters, which latter, in his opinion, were opposed to all the most recent scientific revelations.

The President remarked that bye-laws should only lay down the law with regard to what *ought not to be*, not *what must be*. He had no sympathy with jerry-builders, but was nevertheless of opinion that should these bye-laws be adopted generally a complete stop would be put to the building of many classes of property.

Mr. James Montgomery, hon. treasurer, had much pleasure in seconding Mr. Boult's motion. Mr. Boult remarked that nothing satisfactory could be obtained till Parliament could be induced to legislate upon the question. The Liverpool Building Act was most imperfect; the late borough surveyor, Mr. Newlands, always said so. The town council had often included the amendment of the Act in their various Bills, but the particular Bills to which it had been attached had always fallen through. The chairman of the health committee had told him that they did not intend to bring it forward again, but would wait for a general amendment by national legislation,

After some further discussion, Mr. Boult's motion was put to the meeting, and carried unanimously.

PROPOSED RAILWAY BETWEEN THE CITY AND REGENT CIRCUS.

MR. LEWIS H. ISAACS, the surveyor to the Holborn District Board of Works, has reported to that body with reference to the railway proposed to be made between Farringdon-street and Regent-circus, and for which a Bill is being promoted in Parliament. Powers are sought for the construction of a railway in two sections, the first commencing in the parish of St. James, Westminster, on the north side of Tichborne-street, and terminating in the parish of St. James, Clerkenwell, by a junction with the main line of the Metropolitan Railway in Ray-street, and passing though the parishes of St. James, Westminster; St. Anne, Soho; St. Giles-in-the-Fields; St. George, Bloomsbury; St. George the Martyr; St. Andrew, Holborn-above-Bars; the Liberty of Saffron-hill, and the parish of Clerkenwell. The second section would commence at the termination of the first in Ray-street, and would end in the parish of St. Sepulchre by a junction with the main line of the Metropolitan Railway, at a point about 137 yards measured in a south-easterly direction from the southern side of Charles-street Bridge. No. 1 railway would be constructed partly under the new street authorised by the Metropolitan Street Improvements Act, 1877, partly under New Oxford-street, Hart-street, and Bloomsbury-square, and partly under the new street authorised by the Metropolitan Street Improvements Act of 1872.

"Its course will be better understood" (says Mr. Isaacs) "when I state that it would pass or cross under or near to Great Windmill-street, Rupert-street, and Princes-street, in the parish of St. James, Westminster; Dean-street, Frith-street, and Greek-street, in the parish of St. Anne, Soho; Crown-street, Dudley-street, and George-street, in the parish of St. Giles-in-the Fields; Hart-street, Vernon-place, and Bloomsbury-square, in the parish of St. George, Bloomsbury; along Theobald's-road, King's-road, and Liquorpond-street, in the united parishes of St. Andrew and St. George, cutting obliquely across Laystall-street, Vine-street, Eyre-street-hill, and Warner-street, to effect the necessary junction with the Metropolitan Railway in Ray-street. For the construction of railway No. 2, it would be necessary to divert Turnmill-street and Cowcross-street, for which purpose a large quantity of property is scheduled, although the levels of those streets, as also of all the others affected, would remain unaltered.

It should be stated that the proposed railways will be entirely underground, and considerable engineering difficulties will be experienced in effecting a junction with the Metropolitan Railway in Ray-street, owing to the great difference in the level of the ground in this street as compared with that of the other streets under which the line would pass. Thus, whilst the railway at the western end of Theobald's-road would be only 28 ft. 6 in. below the surface, on arriving at Gray's Inn-road it would be 47 ft., and in Laystall-street 52 ft. 6 in. below the ground level. It should also be noted that the junction in Ray-street with the main line rails of the Metropolitan Railway is proposed to be effected by means of a level crossing, an arrangement fraught with great danger to the travelling public, looking to the fact that this is about the busiest spot on the Metropolitan Railway system.

A considerable quantity of property is scheduled at the junction of King's-road with Gray's Inn-road, which would seem to imply that this spot has been selected for a station. The great depth at which the line would be constructed below the surface at this part would necessitate no less than seventy-five steps being mounted before the street could be reached from the platform level."

GROSVENOR-PLACE, THE GREEN PARK, AND HYDE PARK CORNER.

THE most important thoroughfare of Belgravian London would appear to have been the most neglected in the formation and laying out of its alineation. Before issuing out in Piccadilly, directly opposite to the entrance of Hyde Park, there is a slight deviation eastward; besides that the carriage-way, which is over 50 ft. wide in its main course, is here reduced by 10 ft. Just beyond St. George's Hospital, and opposite to the ducal range of mansions, the Green Park forms the boundary on the east for about 200 yards, and thence to Buckingham Palace-road, by the Royal Gardens, a devious wall, topped by iron railings, leaves a footway which, in some places, is 40 ft. wide, in others 8 ft., the main width being 12 ft.

In the full season this constriction of causeway occasions blocks and stoppages which, in so crowded a thoroughfare as Piccadilly, and at this juncture, must be fraught with danger,—in point of fact, two policemen are always on guard there for the protection of traffic. There is one way of improving the road at this point, whereby 6 ft. at least could be added to the driftway, and that is by removing the iron railing on the west side of the Wellington Arch, and withdrawing the footway close to that structure; and as the boundary wall and railing opposite to the hospital advances upon Grosvenor-place at a slight angle, to a point nearly opposite Grosvenor-crescent, and recedes thence, at a similar angle of divergence, to its junction with Buckingham Palace garden walls, a long strip of ground, extending over 100 yards, could be taken into the causeway, beginning at the arch with say 6 ft., increasing at the salient angle say to 12 ft., and terminating at the Buckingham Palace junction in the old line of wall, thus adding 12 ft. at the salient angles to the road space, without damage to the park. By this trifling addition the unsightly angular obtrusion of the old wall upon this fine thoroughfare might be abated, while a great benefit would accrue to public traffic, and a corresponding advantage be rendered to the occupants of this aristocratic quarter.

It should be observed that the three park-gates stand here with an interval of 42 ft. between each,—the entrance-gate on the left, or west, being opposite to Grosvenor-place; the central gate, directly opposite to the Wellington arch, being reserved for her Majesty; and the eastern gate of issue into Piccadilly, facing the open space which adjoins the arch, and which would appear to have been laid out for continuation of the royal road leading from the Palace to Hyde Park. This road is over 40 ft. wide, and runs for one-third of a mile in a straight line; and if continued would strike out exactly on the point reserved, next the arch, and opposite to the eastern gate of Hyde Park-corner.

Seeing that it needs but 200 yards of new road to complete a grand public thoroughfare, in a straight line, from Hyde Park-gate to the Palace; that there is no hill or obstruction in the way; and, above all, seeing that the short royal route of deviation through the Wellington

arch would not be interfered with, it may be hoped the royal sanction will be conceded for user by those who are in carriages of the only practicable line of intercommunication between the three parks.

Such a concession would open out from Westminster a park drive of over three miles, and an altogether new aspect of forest scenery in London, hitherto unappreciated because little known.

The enclosed grounds of Buckingham Palace are about equal in extent to those of the Green Park, to which the woodland plantations lend a sense of extension, not much contracted by the low ivy-clad wall.

There is yet another most important angle of St. James's Park, which much needs an open carriage access,—that by Spring-gardens. At present there are but two foot wickets; and yet these communicate with Charing-cross, the vital heart of Western London. There is at present a restricted opening by Mr. Drummond's old (late) Banking-house; but as this question is now under consideration of the Metropolitan Board of Works, who have of late years so improved and beautified our metropolis, it is left altogether to their care and attention by

QUONDAM.

BRITISH ARCHÆOLOGICAL ASSOCIATION.

AT the fourth meeting of the session, held on the 16th, after various exhibitions, a paper was read by Mr. Syer Cuming, on "Mistletoe." The lecturer brought together many notices of thi sacred plant from the ancient Latin authors, as well as from those of later date, and its uses from the earliest times to the period when it ceased to be a decoration in our churches were related. In the discussion which followed, its service, from its triple arrangement of berries, as an emblem of the Trinity, was noted. Dr. Phené, F.S.A., described a large collection of ancient relics which he has recently brought from Hissarlik (Troy), from Sparta, Antiparos, Patmos, and many other sites, some of which have been very slightly explored or altogether neglected. Mr. Thomas Morgan, F.S.A., read a paper on the relics from Hissarlik found by Dr. Schliemann, and now at the South Kensington Museum. The extreme ages of the various relics were commented upon, as well as the unique forms of the articles of pottery,—so much unlike other known examples. Dr. Phené pointed out that the moulds found for casting weapons had their counterpart in many found in England. The Rev. A. Taylor showed that the "whorls" were very like similar objects known to have been used for spinning in the British isles.

PARLIAMENTARY ITEMS.

Hyde Park Corner.—In the House of Lords, on Tuesday, Earl Fortescue asked the Government whether there were to be any steps taken to diminish the very inconvenient confluence of vehicles at Hyde Park Corner during the London season; and, if so, when it was proposed to commence the requisite works. The noble Earl said that the crowd and confusion which existed upon this spot were a disgrace to any civilised capital, and especially so to that capital which was the most populous and the richest in the world. In reply, the Duke of Richmond and Gordon said he was afraid that he could only give to the noble Earl the same answer as the Prime Minister gave last year,—namely, that there was a plan in the office for remedying the evil complained of, but that to carry out this plan properly would cost so large a sum that at present the Government were not prepared to recommend to Parliament the execution of the work.

The New Law Courts.—In the House of Commons, on Tuesday, Mr. Hopwood asked the First Commissioner of Works whether the building of the Courts of Justice is progressing satisfactorily, considering the public importance of its early completion; whether any date has been fixed by which it is to be finished; and whether any indulgence, by extension of time or otherwise, has been granted to the contractor on account of disputes with his men, or for any other reason. Mr. Noel replied that the date for the completion of the contract was the 7th of August, 1880. The contractors were entitled to a short indulgence of nearly three months, which had been granted to them; but that was not on account of disputes with the men, but because they were entitled to it under the first of the three contracts which had been entered into with reference to the building.

DEMOLITION OF BULL'S GARDENS, CHELSEA.

AT a meeting of the Chelsea Vestry on the 1st inst., Mr. G. H. Stayton, the surveyor, reported on the above premises (consisting of twenty-two houses), under the Artisans' and Labourers' Dwellings Act, 1868, showing their miserable condition.

Mr. Fisher moved that a copy of the report be sent to Mr. Hunt, Lord Cadogan's surveyor.

Mr. Stroulger.—And also to Lord Cadogan.

Mr. Lawrence hardly thought it possible that Lord Cadogan could ever have consented to give a lease of such property. His lordship could not have known the state it was in.

It was resolved to send copies of the report to Lord Cadogan, Mr. Hunt, and Messrs. Lee & Pemberton, and to appoint that day fortnight to hear the owner's objections (if any), under the 6th and 7th sections of Torrens's Act.

Accordingly, on the 15th inst., Mr. Pemberton (Messrs. Lee & Pemberton, solicitors to the Cadogan Estate) attended the Vestry on behalf of Lord Cadogan, and stated that no opposition would be offered to the proposed demolition, and the Vestry unanimously resolved to proceed in accordance with the provisions of the Act.

CASE UNDER THE METROPOLITAN BUILDING ACT.

"WOODEN BUILDINGS."

AT the Hammersmith police-court, on the 18th inst., Mr. Knightley, district surveyor for Hammersmith, attended before Mr. Bridge in support of a summons which had been taken out against Mr. A. C. Palmer, a builder, for having erected a wooden building without giving two days' notice in writing, as required by section 38 of the Building Act. The building in question was used as a workshop, and consisted of posts fixed into the ground, to which boards were afterwards fixed, forming an enclosure. The district surveyor asked that a penalty might be inflicted in the first instance, after which he would have to proceed further in order to enforce the provisions of the Act in regard to construction; and the magistrate fined the defendant 20s. and costs.

COMMITTAL OF A BUILDER FOR BAD WORK.

MR. HUMPHREYS, coroner, has inquired into the circumstances attending the death of James Patrick O'Connell, aged 29, a bricklayer, who lost his life on the 16th inst., by the fall of a house, just completed, situated in Kenmore-road, Amherst-road, Hackney. The deceased was engaged in the erection of a block of houses, when the wall of an adjacent house fell upon and killed him. It having been alleged at a former stage of the inquiry that the materials used in the construction of the houses were of an inferior character, the coroner ordered an adjournment, in order that a practical and independent person should examine the materials used, and report thereon to the jury. Mr. H. W. Napier watched the case on behalf of the Metropolitan Board of Works; Mr. Phillips, for Mr. Hackett, the builder; Mr. Legge, the district surveyor attended. Frederick Taylor said he was timekeeper and clerk of the works in question. He was employed by Mr. Hackett to supply the contractor, Mr. W. Brown, with whatever materials might be required. The contractor undertook to find the labour at the rate of 3*l.* 10s. per rod, or 25*l.* for each house. Mr. Hackett supplied the whole of the materials.

Mr. John Hackett said he was a plumber and decorator, and lived at No. 27, Clonbrook-road, Stoke Newington. He purchased the ground from the trustees of the Tyssen-Amherst Estate in November last. His plans were prepared by Mr. Blackmore, architect. Witness was not a practical builder, and he had no knowledge of the quantity or quality of the materials used, and left that matter to the discretion of his contractor, Mr. Brown, who had orders to ask for whatever was necessary, and he would be supplied by the clerk of the works. The agreement was that the houses should be built in a workmanlike manner, and he paid him the amount of his offer without asking for a reduction. Witness admitted that Mr. Hamilton, the assistant surveyor to the district board of works, had a fortnight ago called his attention to the inferiority of the materials used, and he had some portions of the works rebuilt, but the wall which fell had not been interfered with. Mr. Humphreys here handed to the witness a copy of a notice served upon him by Mr. Legge. Witness said that on receipt of the document he waited on Mr. Legge.

Mr. Legge said his attention had been called to the buildings in question. At the interview he had with Mr. Hackett he told him plainly that unless he used better materials and conformed to the provisions of the Building Act he would before long find himself at Worship-street, and probably at the Old Bailey on a charge of manslaughter.

Mr. James Edmeston, architect, of Great Winchester-street, City, said he had been called upon to examine the materials used on the works. The conclusion he arrived at was that frost and wind had little or nothing to do with the fall of the wall, but that it was due in the first place to hasty (for the season of the year), careless, and bad workmanship; and in the second to the inferior quality of the materials used. The sand was not good, and the walls were filled up with loose stuff.

Mr. Kemp.—Do you consider the wall fell from preventible causes?

Witness.—I do.

Mr. Humphreys, in summing up, called the attention of the jury to the fact that the owner was not a practical builder, and that he had left his contract in the hands of a builder, to have his work done in a workmanlike manner. The builder was empowered to have the necessary materials, and no attempt had been made to get the work done at a cheap rate.

The Jury retired, and returned in a few minutes with a unanimous verdict of "Manslaughter" against Mr. Hackett. The coroner thereupon issued his warrant, committing him for trial.

PIPES AND FOUL AIR.

SIR,—It has long been my practice to construct waste-pipes from sinks, lavatories, &c., in the manner described by Mr. Norman Shaw, but I have never been so bold as to apply the principle as he has to soil-pipes, and I even now doubt if it would answer in large public institutions, though I certainly will make the experiment.

It is my experience that the short bent length of pipe running from the housemaid's sink to the "funnel-shaped head" becomes coated with a deposit which, when the apparatus is much used, emits a faint odour that gradually permeates the air of the room in which it is placed, and I should fear this would be the case in the short bent arm of Mr. Shaw's soil-pipes, despite the flushing effects of water.

The time requisite to form this deposit depends upon the number of times the apparatus is used, and therefore my doubt as to whether a hospital or a workhouse water-closet would so successfully stand the test for two years, as in the case of Mr. Shaw's house.

I have lately been successful in preventing foul air from entering buildings through soil and waste pipes by the introduction of a sloping lid covering, so hung that when not in use, and the lid closed, the w.c. pan, the sink, or lavatory basin is open to the outer air, but when the lid is raised, and these apparatus are being used, the outer air is excluded.

I enclose you a sketch of the contrivance, but as I cannot say with Mr. Shaw that I have no patent to protect, you will use your discretion as to publishing it. The cover may be seen in use at the New St. George's Union Infirmary, Fulham-road.

H. SAXON SNELL.

SIR,—I have read with interest your account of Mr. Shaw's house-drainage by open soil-pipes. I am not, however, satisfied that the plan is safe, although it certainly possesses some excellent points. The following experiment would go far to determine my opinion to one side or the other:—Let the water-closet window be shut; let the water-closet door be open, and the handle up: let there be good fires in the house; let a good pungent smell be made inside the lowest pipe, just below the grating shown as at the level of the ground (fumes of paraffin or chlorine gas will answer my purpose); then let an observer go into the water-closet and try whether he smells these fumes while they are being generated below. If none of the fumes are, under those circumstances, sucked into the house, let them next be generated in the second section of open pipe, *i. e.* in the long vertical pipe, and let the observer try once more whether he smells them.

If he still fails to smell them, let them be generated inside the broad open section, that is to say, inside the pipe directly attached to the closet.

In this third case it is hardly conceivable that the fumes should not be sucked into the house; indeed, I expect that the fumes will be quite perceptible in all three cases.

If this be so, the house will sometimes be supplied with air through a soil-pipe of greater or less length,—a result which I cannot think desirable. It is bad enough that most houses should be supplied with a great part of their air through their water-closet window; and it

would surely be worse to have it supplied through a long soil-pipe, even allowing that the soil-pipe were for a soil-pipe very sweet and clean.

To take an analogous case: the drains of a town, if in good condition, should be so little offensive that we may walk inside them with no great reluctance. Still, we should not voluntarily supply our drawing-rooms or bedrooms with air previously prepared by being drawn through this sewer.

At any rate, let the experiment be tried so as to see whether the house would or would not, with Mr. Shaw's plan, receive part of its air supply through the long or short soil-pipes.

FLEEMING JENKIN,
Professor of Engineering in the University of Edinburgh.

P.S.—The drawing seems to show a Bramah Closet. It may be said that the house would only receive air through the soil-pipe for the very short time that the water-closet handle was up. This is quite true if the overflow trap is in order, and if the valve is tight; we must, however, face the case, of no uncommon occurrence, that the overflow trap is unsealed, or that the water has passed the valve, leaving the closet dry. We must even remember that careless people do leave the handles of water-closets drawn up.

SIR,—I have been sweet upon soil-pipes for many a year,—advocating, where occasion occurred, the great advantage of open tops for the free outlet of foul air. If architects have been slow converts, manufacturers have not, but the aims of the two are not always the same. Special and patented appliances are the terror of the one and the glory of the other. But still the ventilation of the soil-pipe has been so much discussed of late that I should have supposed the noxious old system of closed tops had quite ceased among skilful constructors. The letter of Mr. Shaw, however, in the *Builder*, of the 12th inst., shows me to be mistaken. He who applies an invention is practically as useful as the originator; and I rejoice to see Mr. Shaw in one of these characters, if not in both. As to open tops, indeed, he is quite out of the race; but the chief interest of his communication lies in the abandonment of the D-trap, and the direct junction of the soil-pipe with the closet apparatus. In the summer of 1875 I did precisely the same thing at the Pimlico Dispensary, Buckingham Palace-road, where it can be readily seen; but, as the pipe had to go through buildings below, one of Beard & Dent's cast-lead traps, with brass screw-cap, was used in lieu of the earthenware syphon. THOMAS MORRIS.

NOTES AT A FIRE.

MR. GEORGE H. CHUBB wrote to us last week but too late for insertion then, as follows:—

"Having had the opportunity of inspecting the interior of Messrs. Crocker's premises in Watling-street, recently destroyed by fire, perhaps I may be allowed to offer a few remarks on the curious effects which were noticeable. The fire commenced in a new block of the building almost completed, and there appears to have been on each floor a pair of sliding sheet-iron doors to separate this block from the rest, according to the requirements of the Building Act. These doors, I need hardly add, proved as usual perfectly useless, all but one having fallen and disappeared; and high up, on the top floor, there still remains a solitary door crumpled up like paper. The brickwork throughout the structure has stood the fierce heat remarkably well,—even the outer walls facing Watling-street, which had tie-rods through them, are still upright. In many places the expansion of iron girders has added to the destruction; but one of the strangest sights amid the ruins is a complete network of iron columns and pillars still in position, notwithstanding that adjacent floors and walls are completely destroyed. The heavy timber beams which were in the older portion of the building have all fallen, and are much charred, but by no means burnt through. In one place, at a height of 40 ft. from the ground, there is a wrought-iron beam, weighing two tons or more, and projecting some 25 ft. from a main wall, in which one end is imbedded, but otherwise hanging without any support whatever. The entrances to two of the strong rooms can be seen, but not approached as yet; the brickwork and stone lintel on the door of one appears to have suffered rather severely. Another strong room is buried under a considerable amount of rubbish, but a large safe was dug out by the firemen and its valuable contents found uninjured."

Institution of Surveyors.—At the next meeting, Monday evening, January 28th, a paper will be read by Mr. J. Smalman Smith, entitled "The Law of Support in its relation to Land, Mines, and Buildings."

THE MASONS' STRIKE.

THE GERMANS.

SIR,—In your number for January 19th, I find that a mason summoned Mr. Macey, the well-known builder. The former claimed to be paid at the rate of 9d. an hour, but the magistrate dismissed his complaint. He did not claim 10d. an hour. Is this a tacit admission on the part of the men that they are beaten, and that the strike is at an end? If not, why did not he ask for the full amount? If we are to believe all the Strike Committee would have us believe, we must conclude that very many employers pay 10d. an hour; and yet Mr. Macey, in his evidence, says he has men enough and to spare, and that their wages average from 4d. to 9d. an hour. If Mr. Macey can get men at those rates, other people can, and the strike is practically at an end.

It is useless to say that German masons cannot do good work. None but ignorant, untravelled men would make such an assertion, and when the abilities of our foreign brethren are questioned,—aye, and denied *in toto*,—such criticisms must be taken for what they are worth. Let any one connected with the building trade put a 10*l.* note in his pocket, and give himself a week at Dresden, Leipsic, and three or four other German cities. Let him examine, too, the noble bridges that span by the hundred the rivers of the Fatherland. Let him look closely into the new masonry at Cologne Cathedral, and, if he has time, let him run on still further and inspect the sumptuous Votive Church at Vienna just completed. What will be the practical lesson taught? Simply this, that at every hand beautiful masonry will be found,—masonry at least equal to our own, and yet *not done by us*. By whom has it been wrought, then? By foreign workmen, of course; and "what man has done [there], man [the same one] can do" [here]. I am accustomed to employ a goodly number of hands, and find that when I have Germans on my staff, as I have sometimes, my experience is they are equal as workmen,—neither better nor worse,—to anybody else. HARRY HEMS.

SCHOOLS OF ART.

Cork.—The annual distribution of prizes to the students of the Cork School of Art has just taken place. The school had 249 students during the past year, and it has become necessary to find larger and more suitable premises than those now occupied. A site for a new building has been secured, and it is proposed to spend 5,000*l.* in the erection of the new structure, towards the cost of which the Department of Science and Art has agreed to contribute 1,000 guineas, subject to certain conditions. Mr. Brennan is the head-master of the school, and was spoken of as "having done wonders" with the means at his disposal. Professor Armstrong addressed the students, and read a paper "On the Dawn of Modern Art."

Oldham.—Mr. J. T. Hibbert, M.P., distributed the prizes to the successful students of the Oldham School of Art and Science on the 7th inst. The report states that 1,256 students have passed through the school during the last five years, bringing the total number who have attended since the opening, thirteen years ago, up to 2,135. This number may be analysed thus:—Students connected with engineering trades, 980; building trades, 329; cotton trades, 234; various trades, 592. Dividing the time, the increase during the past five years in number of students is 283 per cent. above that of 1872; in successes gained, 293 per cent. above that of 1872. These figures show that, notwithstanding the rise in number of students from 135 to 283, the successes are ten per cent. ahead. Foremost of the prizes that may be enumerated is the Whitworth scholarship, gained by Fred. Ogden, of the minimum value of 300*l.*, with the possible aggregate gain of 800*l.* during the three years of tenure. This is the sixth Whitworth scholarship gained by students of this school, the numbers now being,—London and Oldham highest, six each; Manchester five, Wolverton four, Crewe and Glasgow three each. Of the two Whitworth exhibitions awarded, one was gained by Tom G. Taylor; and John W. Geddes, with Travis Platt, granted second year of tenure. These exhibitions entitle the holders to free attendance for two years at several of the day classes at the Owens College. The important opening these exhibitions give to a student's career may be seen from the fact that by their means he may be aided to attend the Owens College, Manchester, for the winter sessions of several years, through the local exhibitions and Whitworth scholarships. A new feature is the number of prizes gained at the Owens College by students from this school,—a total of four prizes and fourteen first-class certificates.

BREARLEY & MARSDEN'S STONE-DRESSING MACHINE.

A NEW stone-dressing machine, patented by B. J. Brearley and G. H. Marsden, Holmfirth, has been exhibited at work by Messrs. T. Robinson & Son, engineers and wood-cutting machinists, Railway Works, Rochdale. The machine, of which a diagram appears in our advertising columns, is worked on the same principle as the table of an ordinary iron planing-machine. The tools or cutters are mounted upon a shaft bearing twelve eccentrics, and each of these eccentrics works one tool. The eccentrics are so set that only one tool strikes the stone at once. Each tool gives 250 strokes per minute, or a total of 3,000 for the twelve cutters. The machine will dress or face stone either to a plain smooth face, ready for polishing, or to work mouldings, channellings, &c. The machine, as we saw it in operation, does its work to a great degree of perfection. The cutters can be altered to any pattern required. The stone we saw being operated upon was 5 ft. long and 2 ft. wide. There were three separate mouldings, and several narrow flutings at the edge. We understand that the machine in operation was destined for Messrs. R. Neill & Sons, contractors, Manchester. The right of manufacturing has been bought by Messrs. Robinson & Son.

GAS ESCAPE.

SIR,—Gas explosions seem to have been frequent of late, and often from a light being taken to find out the escape. I should like to ask to what extent the sense of smell is a guide to the amount of escaped gas. Sometimes one enters theatres and places where there is a strong smell of gas, and yet the gas is burning safely all round; on the other hand, dangerous explosions occur where, unless people are void of the sense of smell, one would think that there was danger enough in the air to give a caution. Can escaped gas be dangerously accumulated, and yet there be no smell? HOUSEHOLDER.

BRICKMAKING.

SIR,—Being an old subscriber to your paper, and knowing you are ready to help any one out of difficulties, I venture to ask if any of your readers can inform me how to prevent bricks from cracking. I have had one of Messrs. Ward & Son's, of Leeds, patent brick machines fixed at great expense. The machine makes a good square brick; every brick receives a pressure of 30 lb. to every square inch, and the brick, when it leaves the machine, is nearly fit for the kiln; but when we come to burn the brick it is full of little cracks. If you or any of your readers can help me out of this difficulty I shall be very grateful. THOS. FREE.

LIGHT AND AIR CASE.

THE action, Moore *v.* Hall, Queen's Bench Division, before the Lord Chief Justice and a common jury, was brought by the plaintiff, proprietor of the Dundee and Newcastle Coffee-house, in Upperwell-court, or alley, High-street, Wapping, to recover damages for the diminution of light and air to his premises, caused by lofty warehouses erected by the defendant, without leave, on the opposite side of the way.

It appeared that the plaintiff had taken a lease of his premises for ninety years, eighty of which are yet to run, and that he fitted them up as a coffee-house, and furnished the rooms with numerous beds, at 9d., 1s., and 2s. per night, and did a good business in that item, there being in some of the large rooms as many as five beds. As instances of the injury to his establishment, he deposed that he had, prior to the erection of the warehouses by the defendant, a young gentleman, as lodger and part boarder, who was studying for the London University, and paid him a guinea a week, but who left him on the light, which was important to him, being diminished by the great height of the warehouses. Plaintiff also adduced evidence showing that a jobbing tailor, who worked in his front sitting-room, which had the benefit of a good light prior to the construction of the warehouses, could not, after the construction, work at his trade there, and was obliged, consequently, to transfer his occupation to a back room.

An architect and an auctioneer gave evidence of the depreciation of the value of the leasehold, owing to the diminished light.

The Lord Chief Justice, in summing up, said the question for their consideration was whether there had been practically any such sensible diminution of light to the plaintiff's premises by the warehouses on the opposite side of the way as would depreciate the value of his interest in his business. They had heard from him that he paid 42*l.* a year rent, and that the profits of his business, which he stated as 230*l.* a year since 1864, had fallen off owing to the diminution of light to his premises; and they had also heard from the plaintiff's wife, Mrs. Moore, that their gas bill had doubled by the necessarily increased consumption of the article. They would take those things into their consideration. On the other hand,

they would consider the evidence given on behalf of the defendant, which conflicted with that of the plaintiff, the contention being that there was no diminution of light by the warehouses, which were alleged to be a great improvement and benefit in the neighbourhood.

The jury conferred together a few minutes in their box, and returned a verdict for the plaintiff,—damages, 50*l*., subject, on request of defendant's counsel, to the consideration of a point of law raised by them in the proceedings.

Judgment was prayed by the plaintiff's counsel; but the Lord Chief Justice said he would postpone it until Monday, to give the defendant's counsel time to consider whether they would press the point for argument.

Verdict for plaintiff accordingly.

Books Received.

Floral Designs for the Table; with 24 Original Coloured Designs. By JOHN PERKINS, Head Gardener to Lord Henniker. London: Wyman & Sons.

WE quite agree with Mr. Perkins that "Lightness and elegance should be the motto of every dinner-table decorator, and the view across the table should not be obstructed more than is absolutely necessary." A great change for the better in this respect has taken place in many quarters since we first raised a voice against the absurd manner in which people on one side of a table were hidden and separated from those on the other. Low trough-like vessels containing flowers in sand followed; and Mr. Perkins would supersede these by leaves and flowers laid on the cloth itself. He gives a number of designs and lists of plants fitted for the purpose, wherein, by the way, he should have used the common rather than the botanical name. The book will be found useful, especially by persons attached to important establishments where the table has to be decorated every day and variety is looked for.

VARIORUM.

"A Manual of Heating and Ventilation," by F. Schumann, C.E. (New York, D. Van Nostrand), is intended for the use of engineers and architects, and embraces a series of tables and formulas for dimensions of flow and return pipes. It is a book of results rather than of reasoning.——Mr. Ewing Matheson announces an "Aid Book to Engineering Enterprise Abroad." It will treat of public works and engineering enterprises in their inception and preliminary arrangement; of the different modes in which money is provided for their accomplishment; and of the economical and technical considerations by which success or failure is determined. The information necessary to the designs of engineers will be classified, as also those particulars by which contractors may estimate the cost of works, and capitalists the probabilities of profit.——"Quantities: a Text-book for Surveyors," by Banister Fletcher, Architect, consists of various papers said to have been issued originally in a weekly publication. It does not seem to us superior to existing works which have the same object in view; it is briefer than one and fuller than another of them, but it will doubtless be found useful by any who will study it as an introduction to the system pursued. It is published by Mr. Batsford.——"Seen and Unseen: an Epiphany Poem," by the Rev. S. T. Wood, M.A. (Simpkin, Marshall, & Co. Eastbourne: W. Leach), is out of our line. We do not presume to teach religion in words: with us *Laborare est orare.* Still, as it has reached us we will say the poem is in the form of conversations between two friends, one called Professor, the other Confessor. The Professor is scoffing and doubting, yet anxious to find the truth; the Confessor answers him, trying to satisfy his want. The arguments and ideas are poetically clothed and agreeably expressed.

Belgian Ironwork.—Messrs. Matheson & Grant say in their Engineering Trades report:—"Belgian iron is imported regularly and in large quantities into England in the form of rolled joists and small riveted girders; and the low prices at which this iron is sold are continually giving rise to an alarm-cry about foreign competition. But though some very good iron is made in Belgium, and can be purchased for use in England by those who take the necessary precautions, the large proportion of what is imported here for sale to builders is of the very lowest quality that can be made; this being the obvious result of competitive building tenders under architects who accept as sufficient anything that has the outward semblance of iron."

Miscellanea.

The Rowland Hill Memorial.—The executive committee for carrying out the memorial to Sir Rowland Hill at Kidderminster met on Tuesday to consider the question of site, and of choice of sculptor. It was stated that the amount promised amounted to 1,620*l*., and the subscriptions came from over 100,000 in this country and abroad, the largest number, it was stated, which has ever contributed to any memorial. After deducting expenses and allowing for additional subscriptions, it was believed that a sum of 1,500*l*. would be available for the memorial. A committee was appointed to ask of the Town Council the choice of more central sites than those already offered by that body; and it was resolved to invite the following sculptors to send in models for the memorial:—Messrs. Brock, Thornycroft, P. Birch, Bruce Joy, S. Horner, Woolner, R.A., Bell, Fontana, Calder-Marshall, and G. A. Lawson. It was resolved that the statue should be of Carrara marble, the cost of the statue and pedestal not to exceed 1,300*l*. The models are to be sent in by July 1st, and the work to be completed within two years from that date.

Inhabited Houses in the Metropolis.—A return has been issued by the Metropolitan Board of Works of the number of inhabited houses in the metropolis in the years 1851 and 1871:—In 1851 the number of houses was 306,086. The population of the metropolis in 1851 was estimated at 2,363,405. In 1856 the rateable annual value of the metropolis was 11,283,663*l*., the average value of each house being 36*l*. 17s. 3d. In 1871 the inhabited houses numbered 419,642. It will thus be seen that in the course of twenty years the number of houses increased to the extent of 113,556. In 1871 the population of the metropolis was 3,266,987. In 1876 the rateable annual value amounted to 23,111,313*l*., the average value of each house being estimated at 55*l*. 1s. 5d. For the current year (1878) the rateable annual value of property in the metropolis had been set down at 23,469,970*l*.

Hydro-Geological Map.—Mr. F. R. Wilson, architect, the Sanitary Inspector of the Districts of Alnwick and the neighbourhood, has prepared, with much pains, as well as artistic skill, a Hydro-Geological Map of the Districts with which he is officially connected. It shows the entire sources, and resources, of water and water-supply. We do not know that a similarly comprehensive water-map of a large district has ever been before attempted. Local water-supplies are too generally considered by "authorities" piecemeal for want of comprehensive information on the subject. It is not unlikely that the Geological Survey Department may, in future, include details of springs and sources of water in the geological maps of the country. It would have been well if we had had "hydro-geological maps" of the entire kingdom made years ago.

Accident. — Dr. Hardwicke has held an inquiry at the Prince of Wales's Tavern, Caledonian-road, as to the death of William James Wisdom, 37, of 29, Summers-road, Portsmouth. The deceased, a carpenter, came up to London from Portsmouth a fortnight ago for work, and was engaged by Messrs. Mowlem & Burt, builders and contractors, who are erecting a new infirmary in the Archway-road, Highgate. On Wednesday in last week the deceased was engaged in fixing struts between the joists, when he put his foot on a temporary strut, which gave way, and the deceased fell down to the ground, 15 ft. beneath. He received a fracture of the skull, from which he died on the following day. The jury returned a verdict of "Accidental death."

New Church at Bow.—The ceremony of laying the foundation-stone of the new church of St. Paul's, in St. Stephen's-road, Roman-road, Old Ford, was performed by Mr. J. D. Allcroft. The style of the building is Early French, and the church is designed to hold about 740 persons, the cost being between 7,000*l*. and 8,000*l*. The architects of the new structure are Messrs. Newman & Billing, of Southwark; and the builders, Messrs. Wood, of Mile-end.

Designs for Plate.—As will be seen by an advertisement in another part of our paper, the drawings submitted in competition for the prizes offered by the Goldsmiths' Company for designs for plate, are now on exhibition at the Architectural Museum, Westminster.

Prince of Wales's Theatre. — SIR Delighted as I was on Saturday last with the performance of "Diplomacy" at this theatre, where refinement of language is the chief attraction, I was somewhat disappointed to hear now and then such bad grammar as the following:—"If everybody had *their* way"; "he *don't*"; "nor *me*" for "nor *I*"; "one or *the other*" for *another*, where several things are mentioned; "it was *him*"; and so on. The actors, who command so much praise, will surely take some trouble to remove such blots in the future progress of the piece.—J. B.

The Midland Land and Investment Corporation.—The success of this association seems almost *too* great. At the next annual meeting of the shareholders, to be held on the 28th inst., the directors will state that the balance of profit is 34,165*l*. 8s. 7d., and wil recommend that this amount be appropriated as follows:—

To pay a dividend at the rate of 15*l*. per cent. (free of income-tax)	£8,757 12 5
To carry to the reserve fund (thus raising this fund to 100,000*l*.)	23,200 0 0
To carry to the next account	2,207 16 2

New Railway and Tramway Bills.—The report of the Board of Trade on all the railway, canal, tramway, gas, and water Bills of the session of 1878 has been issued as a Parliamentary paper. The total number of Bills is 217, with a proposed capital of 42,263,179*l*. It is proposed to construct 674 miles of railway and 118 miles of tramways.

Amber Ornaments and Figures. — A number of correspondents ask for further information on this subject. If the writer of the paragraph has any to give we shall be happy to receive it.

Cleopatra's Needle has safely arrived in the Thames, and is now berthed in one of the basins of the East India Docks.

Town-hall, Chester.—The architect was Mr. W. H. Lynn, R.H.A., not Mr. Waterhouse as accidentally stated in our last.

Child's Bank.—The new building is to be erected, we understand, from the designs of Mr. John Gibson.

TENDERS

For the erection of two detached residences at Piper's-green, Kingsbury, for Mr. A. O. Crooke. Mr. Shoppee, architect:—

Whiteley	£2,475 0 0
Axford	2,345 0 0
Linfield	2,338 0 0
Green & King	2,159 0 0
Langmead & Way	2,141 0 0
Braid & Co.	2,140 0 0
Gibson Bros.	2,067 0 0
Hardy	2,050 0 0
Kearley	2,044 0 0
Donne	1,981 0 0
Mattock Bros.	1,891 0 0
Parker & Evans	1,764 0 0

For workshops, &c., for Messrs. Wendover & Co., Hanover-street, Portsea. Mr. E. Wendover, architect. Quantities supplied by Messrs. Hovenden, Heath, & Berridge:—

		Credit for old material.
Cooper	£1,800	—
Johns	1,600	£30
Croad	1,525	—
Bramble Bros.	1,495	—
Lawrence	1,470	25
Light Bros.	1,466	30
Burbidge (accepted)	1,435	20

For alterations to old house, and building west wing at Bishop's Down Grove, Tunbridge Wells, for the Bishop's Down Grove Spa and Hydropathic Company (Limited). Mr. M. Lawrence Caley, architect:—

Bayes Bros. & Allen	£4,058 0 0
Strange & Sons	3,990 0 0
Gallard & Son	3,926 10 6
Willicombe & Oakley (accepted)	3,800 0 0

For building residence at Frant, near Tunbridge Wells, for Mr. T. Hanson Lewis. Mr. M. Lawrence Caley, architect:—

Gallard & Son	£3,790 0 0
Strange & Sons	3,762 13 0
Wheatley	3,668 0 0
Willicombe & Oakley	3,263 0 0
Bayes Bros. & Allen	3,245 0 0
Beale & Son (error)	2,639 0 0

For pulling down old premises and building new shop and house in High-street, Tonbridge, for Messrs. Wightwick & Son. Mr. M. Lawrence Caley, architect. Quantities by Mr. Thos. Ladds:—

Dove	£3,899 0 0
Bayes Bros. & Allen	3,582 0 0
Punnett & Sons (accepted)	3,432 0 0
Clements & Wallis	3,395 0 0
Gallard & Son	3,394 0 0
Wheatley	3,267 0 0

For the erection of two chapels and a lodge in the new cemetery, for the Corporation of the Borough of Longton. Mr. A. Hardwicke, architect:—

Johnson	£3,156 0 0
H. & R. Inskip	2,784 0 0
Rowley & Lynex	2,400 0 0

For alterations and cabinet-work to Frankfort Arms public-house, Harrow-road, Paddington. Mr. G. G. Perry, architect:—

Wheelar	£595 0 0
Lamble	494 0 0
Bowles	493 0 0
Aitchison & Walker	427 0 0

For the erection of a disinfecting station for the Corporation of the Borough of Longton. Mr. A. Hardwicke, architect:—

Bennion	£235 0 0
Collis	225 0 0
H. & R. Inskip	195 0 0
Harvey	170 0 0

For detached villa at Dulwich, for Mr. G. Paulin. Messrs. Raynes & Shum, architects:—

Langmead & Way	£1,183 12 0
Brown	1,154 0 0
Braggins	1,070 0 0

For new premises, London-street, Reading, for Mr. Jos. Long. Messrs. Brown & Albury, architects:—

Filewood (accepted)	£2,500 0 0

Smith and Ironfounder's Work.

Williams (accepted)	£271 0 0

Plumber and Painter's Work.

Millington (accepted)	£349 0 0

For the erection of schools for the parish of St. Matthew, Silverhill, St. Leonard's-on-Sea. Messrs. Fowler & Hill, architects:—

H. & C. Hughes (accepted)	£1,280 0 0

For new hotel, Bridge-street, Northampton. Mr. S. J. Newman, architect:—

Loveday	£5,700 0 0
Dunkley	5,253 0 0
Cosford	5,234 0 0
Clayson & Sharman	4,880 0 0
Watkin (accepted)	4,340 0 0

For the completion of a pair of villas in the Underhill-road, Lordship-lane, Dulwich, for Mr. George Paulin. Messrs. Raynes & Shum, architects:—

Brown (accepted)	£760 0 0

Accepted for two cottages to be erected on the Canterbury-road, Folkestone, Kent, for Mr. J. Sharp. Mr. Burgess J. Reeve, architect:—

Excavator, Bricklayer, Mason, Slater, and Plasterer's Work.

Keeler	£154 10 0

Carpenter and Joiner's Work.

Reason	£135 0 0

Plumber, Glazier, and Painter's Work.

Mempes	£12 0 0

For alterations and additions to shop and premises in High-street, Hythe, Kent (exclusive of painting), for Mr. D. Walter. Mr. Burgess J. Reeve, architect. Quantities supplied:—

Holdom	£650 0 0
Hoad	600 0 0
Prebble	£95 0 0
Butler	565 0 0
Amos	539 0 0
Payn (accepted)	410 0 0

For completing residence in the Brockman-road, Folkestone, Kent (exclusive of drainage), for Mr. W. Tite. Messrs. Burgess & Reeve, architects. Quantities supplied:—

Slade (accepted)	£295 10 6

For alterations and additions at 13 and 15, Westbourne-grove, Bayswater, for Mr. Henry Dobb. Mr. W. S. Witherington, architect:—

Mark	£1,880 0 0
Drew	1,800 10 0
Somerville & Smith	1,705 9 0
Lascelles	1,664 0 0

For Congregational church and schools, Soho-hill, Birmingham. Messrs. Bidlake & Fleeming, architects:—

Hughes	£12,275 0 0
Barnsley & Sons	12,164 0 0
Horsley Bros.	11,891 0 0
Barker & Son	11,855 0 0
Garlick	11,445 0 0
Bennett	11,432 0 0
Wilson & Son	11,272 0 0
Nelson	11,193 0 0
Dawson & Bradney	11,028 0 0
Horsman & Co. (accepted)	10,973 0 0

TO CORRESPONDENTS.

B. Son & Co. (we cannot assist).—C. C. H. (a notice already in type).—Subscriber, *Cork* (apply to the Society of Arts, Adelphi).—C. G.—J. G.—W. F. S.—W. C.—E.—W. C. A.—H. H.—R. S.—J. B.—S W.—T. P.—W. G—W. H. F.—R. B. S.—S H—B. & R.—B. & T.—H. R.—C.—C. H. A.—H. M. C.—T. M. H.—C Son & P.—M. & Co.—C. J. S.—W. S. W.—W. C.—W. B.—B.—W. H. L.—G. P.

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